

Thursday, January 14, 1982

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## Competitor for BT in value added field

by David Craver  
ONE of the first companies to apply for a licence to offer value added services in competition with British Telecom over its telecommunications networks will be Commercial Cable Co, the UK subsidiary of International Telephone and Telegraph.  
At the same time, an ITT spokesman in New York has confirmed that talks are taking place which could lead to ITT's communications services group, of which Commercial Cable is a part, being set up as a separate entity. This would take the form of either a new public company or a joint venture with another company.  
ITT's fast growing communications service group is in need of additional capital to expand its business. That includes ITT's role as the leading carrier of international telefax from the US, and its new domestic telex and telephone services.  
The spokesman says that the talks have been "more in-house than with other corporations", and that speculation concerning the group is "very premature".  
"Nothing definitive is going on," he adds, and decisions will at least await ITT's offer for sale of its US forest products subsidiary, ITT Rayonier. That could bring in \$3.3 billion and solve the capital requirements.  
Commercial Cable's entry into the market for value added telecommunications services, which will probably involve telex, is made possible by the government's moves towards deregulation. That allows value added services to be sold in competition with BT as of this year, with the first licence expected to be issued by the Department of Industry no sooner than April.

## AT&T buys stake in Irish telecoms

by Kevin Cahill  
AMERICAN Telephone and Telegraph, the giant American telecommunications company, is in the final stage of negotiations to take a significant stake in Ireland's biggest electronics company, Telecton.  
AT&T has just reached a historic agreement with the American government's antitrust department to divest itself of two thirds of its assets in the shape of local American telephone companies (see page 2).  
As a result of this agreement, and of deregulation of telecoms and data transmission in the States, AT&T is expected to become much more active in the field of electronics and computing, with the Irish deal probably the first of several in Europe.

The choice of Telecton, an unquoted private company in Dublin which employs about 800 people

and which had turnover of £18.10 million according to the last published accounts, is directly connected with Telecton's £40 million participation in the £800 million redevelopment of the Irish phone system.  
The major contract for the modernisation went to CIT Alcatel of France, but with substantial local subcontracting guaranteed to Irish companies, such as Telecton.  
Telecton has traditionally been strong in transmission equipment. The deal with Alcatel will draw Telecton into digital switching systems and is scheduled to produce 1,000 new jobs in the jointly owned company, which will have its manufacturing base in Bandon, Co. Cork.

Irish sources suggest that the price to be paid for the AT&T stake of 45% will be about £13.6 million, based on the £18.1 million Guinness paid recently for a 26% stake in the company.

A spokesman for AT&T confirmed that the American company was buying into Telecton because of the latter's European connections and its expertise to 65 countries.

AT&T, which will not be buying any part of the Guinness stake, said that there was a natural match between new telecoms transmission equipment developed by AT&T and Telecton's existing product line. AT&T would be introducing this equipment to Telecton for manufacture in the first months of their collaboration.

AT&T also hoped to offer the new equipment to the Irish PTT authorities as part of the supplies for the £800 million redevelopment.

Sources in Dublin suggest that Telecton's final participation in the contract over the next four years could be worth up to £80 million.

## 'UK must aim for standard software'

by Claire Gooding  
BRITISH real time software specialists must move away from bespoke projects and aim at producing standard software products or modules.

This was the conclusion of a report on real time software research and development in the UK from the National Economic Development Office. The report paints a picture of an industry whose potential is being wasted on fragmented and duplicated development work.

According to NEDO, even the largest companies are having problems in producing generalised high-level software tools, and for small British companies such investment undertaken individually is out of the question.

In answer to these problems the report recommends that major public sector consumers in the UK get together to define a shortlist of software tools and methods for all new contracts, and that the real time software companies then select co-ordinate developments and pool their expertise.

The NEDO report held up as an example the Japanese, or more accurately, Toshiba Corp. Toshiba's Heavy Apparatus Division, which produces nuclear reactors and other heavy engineering, set up a software factory of 2,000 employees in develop real time software for industrial process control and related areas.

The only example of similar co-ordination NEDO could find in Britain was the British Telecom System X project.



CHISHOLM... "Japan offer 25-year security"

John Chisholm of C&S Ltd agrees with the report that perhaps it does not go far enough on government action for the real time software industry. "We are not big enough to have the strength of the Japanese. They are concentrating on the product, not the product."

"Their techniques led to productivity, reusable software and less change because the modules are proven. Their software is to have 0.8 bugs per thousand per year compared to 30 in ours. We are not big enough to have the strength of the Japanese. They are concentrating on the product, not the product."

The report suggests a real mechanism set up by government to co-ordinate real time software development teams using software suppliers and public sector consumers.

In the meantime the NEDO report could make progress in the development of real time software tools and methods for all new contracts, and that the real time software companies then select co-ordinate developments and pool their expertise.

The only example of similar co-ordination NEDO could find in Britain was the British Telecom System X project.

## Swansea system for tender

PRIME Minister Margaret Thatcher seems to have scotched a suggestion that a replacement for the system at the Driver and Vehicle Licensing Centre in Swansea should not go out to general tender. She has issued instructions that there is no reason to depart from the normal rules of government procurement.

The issue has yet to go to Cabinet. Despite the growing overload on the current system, there is no sign that Transport Secretary David Howell is ready to act. Both current supplier, ICL, and would-be bidder IBM, are waiting to leap in when he does.

## ITT launch

IN the week when ITT Consumer Products launched the 3030 personal computer, ITT Business Systems has introduced a range of word processors which, it claims, can replace most microcomputer functions. Record processing facilities are included in the £5,200 price of the 3100 Scribe word processor. ITT 3030 details, see page 5.

## Draft standard

INCREASING commercial use of Pascal has led the American National Standards Committee to produce a draft version of a standard. The aim is to promote the portability of Pascal programs between systems. The standard includes a change to the syntax used to specify parameters which require the use of specific headings.

## Inmos start

MANUFACTURE of 64K RAM chips will begin at Inmos' new factory in Wales later this year, probably in July. Inmos, whose majority shareholder is the British Technology Group, has been producing all its chips in the US. Turnover of the company has now reached over \$1 million a month.



TRAMIEL... "We are the American Japanese"

## Micro for all users is close

by Robert Parry  
ONE more step towards the universal microcomputer has been made with a decision by industry pioneer Commodore to make rivals' software run on its own machines.

Plans for a machine that would emulate personal computers from rivals Apple, Tandy and IBM have been announced by Commodore chief executive Jack Tramiel. Two new personal computers and a video game doubling as a micro were introduced at the recent Consumer Electronics Show in Las Vegas.

The proposed emulator will be an option on the Commodore 64, one of three new launches. Using plug-in circuitry, it will run programs written for other microcomputers without change, giving access to a wealth of proven

application software without expensive development by Commodore. The planned price, below \$1,000, would undercut rival products by a factor of between two and four.

The introduction of a machine emulating rival hardware like this is expected to lead to machines of comparable capability becoming highly price competitive. As with the IBM plug compatible mainframe market this would reduce profitability on hardware and lead manufacturers to seek more of their margins from software.

The emulator is likely to sell mainly to the business market, though Tramiel has been reported as saying that they could cut into sales of existing products lines, sold mainly in the consumer field in the US. "We'd prefer to compete with ourselves than

have someone else complete with us," he told the Wall Street Journal. "We are the American Japanese. We don't want to invent anything; we just want to make sure we have the best."

Commodore's emulator is likely to be shown first at the Hannover Fair in April, by which time the other machine should be available in the US. They are not likely to appear on European markets until late this year.

All three machines are aimed at the lower end of the personal computer market, and according to Commodore, offer better facilities at lower prices than established machines.  
The Commodore 64, with 64K RAM readily expandable to 128K, is aimed at machines with 40-column colour displays such as the Apple II and Atari 800.

## IBM worldwide profits take a \$200m tumble

by Kevin Cahill  
THE recession is tough for everyone - and IBM this week showed it is no exception. The worldwide 1981 results, published just 18 days after the close of the books at the year end, show that IBM's profits were down \$200 million to \$3.3 billion compared with 1980.

The fall followed a 22% drop in the third quarter's profits and a 12% fall in the fourth quarter.

IBM president John Opel blamed the profit fall on the stronger US dollar and foreign currency translation.

He said that while the translation of assets and liabilities resulted in exchange gains, the translation of income and expenses of the non-US operations had a significantly adverse effect on results.

Sales turnover was up by \$2.85 billion to \$29.07 billion. This is greater than the combined sales revenues of the next ten US computer companies including DEC, NCR, CDC, Honeywell, Sperry, Hewlett-Packard and Xerox.

Overseas sales rose only fractionally, from \$13.7 billion in 1980, to \$13.9 billion in 1981, and profits from overseas operations fell away sharply from \$1.9 billion to \$1.23 billion in 1981.

IBM reckons that had exchange rates remained constant at 1980 levels foreign profits would have been \$600 million higher.  
During last year the company is reckoned to have taken up billions of dollars in long and medium-term debt, above the \$5 billion credit lines showing in the 1980 balance sheet.

No mention of the cash or debt

position is made in the preliminary accounts but Lee Margolis, computer stock analyst at Wall Street brokers Wood Gundy, reckons that capital expenditure peaked in 1981 and consequently IBM's debt position is improving.

Sanford Garret, analyst at brokers Paine Webber Mitchell Hu-chins, expects the company to be shipping large volumes of its top-of-the-range 3081s in 1982 which will further ease its cash position, though he does expect some borrowing to continue.

Tom Crotty, analyst with the Gartner Group in the US, said that IBM's drop in earnings both for the year and for the final quarter was in line with expectations although the tax rate was a little higher than anticipated.

Crotty insists that the outlook for 1982 is rosy. "We expect strong year-to-year comparisons in the range of a 30% increase and we are currently estimating earnings of \$7.45 per share, but this depends on IBM announcing an additional large scale system in the first quarter for shipment by year-end."

He also referred to IBM's recently introduced early retirement scheme for employees in the US as a means of cutting overheads and opening up promotional channels within the company. The scheme applies mainly to positions eliminated as a result of reorganisation, which according to Crotty may be measured in thousands. It also applies to legal staff who would otherwise have to be retained in IBM's product range now that the Department of Justice has dropped its anti-trust case.

## Battle of IBM and AT&T

● From front page

When it was filed, IBM had an estimated 70% of the world mainframe market. More recently, IBM's share has been estimated at under 60%.

The government's case against IBM never appeared to hold back the company from competing vigorously, particularly in recent months when its pricing of the IBM personal computer and other products was seen as particularly competitive.

IBM's defence of its case had always been that it provided superior products and services, and it was these, rather than any other actions, which accounted for its large market share.

Most industry analysts believe the dismissal of the case will have no significant effect on IBM or



CURRAN... IBM will require more efforts for its EEC case.

on the domestic computer industry.  
John Curran, marketing director for plug-compatible manufacturers (NAS), commented: "I expected the move. The suit was outdated and outdated and it was silly to continue with it."  
"The EEC case is progressing more rapidly and will require more legal effort from IBM. However, the EEC case will not drag on for another 11 years as well."

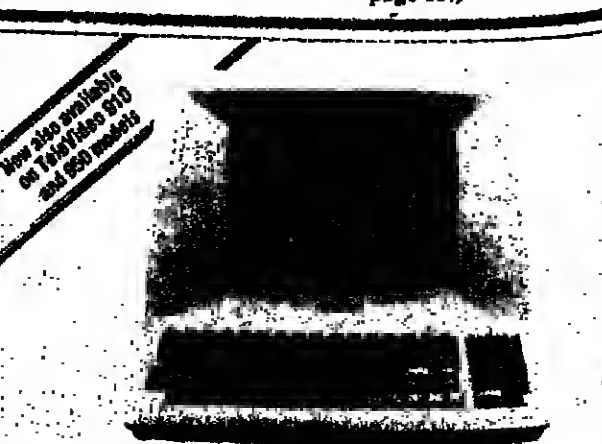
And still, the other major plug-compatible competitor to IBM, refused to comment.

At the time the case began 13 years ago, IBM controlled 70% of

the world-wide market for mainframe computers. Meanwhile microcomputer manufacturer Digital Equipment Corp (DEC) has grown in size to be the second largest computer manufacturer in the world prior to the Burroughs Memorex merger.

IBM's share in the US market has now dropped to 56% and is only marginally higher world-wide at 62%.

"The dismissal of the case is unlikely to change the minds of the European Commission to press ahead with their case against IBM's alleged abuse of its dominant market position."  
"It will mean that IBM now has more resources available to fight the EEC case effectively."



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## THE JAPANESE CONNECTION

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TMM201P	16K static ram 1600S	1,995	16K static ram 1600S	1,995	
TMM201P	16K static ram 2600S	2,710	16K static ram 2600S	2,710	
TMM201P	16K static ram 4600S	3,425	16K static ram 4600S	3,425	
TMM201P	16K static ram 6600S	4,140	16K static ram 6600S	4,140	
TMM201P	16K static ram 8600S	4,855	16K static ram 8600S	4,855	
TMM201P	16K static ram 10600S	5,570	16K static ram 10600S	5,570	
TMM201P	16K static ram 12600S	6,285	16K static ram 12600S	6,285	
TMM201P	16K static ram 14600S	6,995	16K static ram 14600S	6,995	
TMM201P	16K static ram 16600S	7,710	16K static ram 16600S	7,710	
TMM201P	16K static ram 18600S	8,425	16K static ram 18600S	8,425	
TMM201P	16K static ram 20600S	9,140	16K static ram 20600S	9,140	
TMM201P	16K static ram 22600S	9,855	16K static ram 22600S	9,855	
TMM201P	16K static ram 24600S	10,570	16K static ram 24600S	10,570	
TMM201P	16K static ram 26600S	11,285	16K static ram 26600S	11,285	
TMM201P	16K static ram 28600S	11,995	16K static ram 28600S	11,995	
TMM201P	16K static ram 30600S	12,710	16K static ram 30600S	12,710	
TMM201P	16K static ram 32600S	13,425	16K static ram 32600S	13,425	
TMM201P	16K static ram 34600S	14,140	16K static ram 34600S	14,140	
TMM201P	16K static ram 36600S	14,855	16K static ram 36600S	14,855	
TMM201P	16K static ram 38600S	15,570	16K static ram 38600S	15,570	
TMM201P	16K static ram 40600S	16,285	16K static ram 40600S	16,285	
TMM201P	16K static ram 42600S	16,995	16K static ram 42600S	16,995	
TMM201P	16K static ram 44600S	17,710	16K static ram 44600S	17,710	
TMM201P	16K static ram 46600S	18,425	16K static ram 46600S	18,425	
TMM201P	16K static ram 48600S	19,140	16K static ram 48600S	19,140	
TMM201P	16K static ram 50600S	19,855	16K static ram 50600S	19,855	
TMM201P	16K static ram 52600S	20,570	16K static ram 52600S	20,570	
TMM201P	16K static ram 54600S	21,285	16K static ram 54600S	21,285	
TMM201P	16K static ram 56600S	21,995	16K static ram 56600S	21,995	
TMM201P	16K static ram 58600S	22,710	16K static ram 58600S	22,710	
TMM201P	16K static ram 60600S	23,425	16K static ram 60600S	23,425	

N.C.C. Toshiba... Full range of memory modules... 280,000... 01-262 0000 (10 lines) or 01-262 0001 (10 lines)

## Compensation snag for French

by Jack Gee and David Craver  
COMPENSATION has become a major stumbling block for President Mitterrand in his programme to nationalise and restructure the French computer industry.

The Constitutional Council has at the last minute rejected compensation terms, while approving the principle of the State takeover.  
The effect of the ruling will be to set back nationalisation by at least four or five weeks, and possibly several months. After new

details are ironed out, there will be another shuttle between the National Assembly and the Senate before a law comes into force.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CIT. Honeywell Bull will also be costly.

The Council, which has the last word on the French constitution, says the law as it stands fails to

offer adequate compensation to shareholders. Amendment to the law could add £250 million to the £3 billion which nationalisation is likely to cost the taxpayer.

While the Constitutional Council has balked at compensation terms for the shareholders, it is unlikely to upset the government's overall scheme. CIT-Honeywell Bull, Thomson, Compagnie Generale d'Electricite and Matsa are the major firms in the French computer industry which will be affected by the government's

rationalisation plans.  
CIT-HB and Thomson will be brought together in a close alliance, though it will fall short of an actual merger. The two will receive big injections of cash to create a viable French minicomputer industry. Though Matsa-based Honeywell will have to be paid off, Mitterrand wants to maintain technological and commercial ties with the US firm.

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## Clay firm aids jobless with comms venture

by Donald Kennett  
IN an unusual foray into the communications industry, English Clay, best known for its quarrying, has started a joint venture with US company Western Union. A company will be formed to launch a range of new communications services in the UK over the next few years.

Like several other employers, notably Pilkington Glass in Lancashire, ECC finds itself the dominant employer in its community. Faced with declining manpower requirements at a time of generally rising unemployment, ECC set up a Local Enterprise Trust to ease the problems this has caused.

Planning chief Dr Terry Thurnycroft said the company had always been indirectly interested in communications, because of its remote location and its connection with the paper industry. Most of ECC's output goes into coatings to make paper easier to print on. In looking for businesses which could use the space and people available in the area, the opportunities opened up by the British Telecommunications Act and trends to working in remote locations were an obvious direction, he said.

ECC's first investigations were into voice services based on the Delta communications processor from the US. But the demise of Neros, which was handling it in the UK, has been a setback. Other investigations with radio-telephone messaging company Air Call and with the British Technology Group are continuing.

ECC has now put up £100,000 for a 20% stake in Western Union Global Information Services, the joint venture which will be run primarily by WU.

It will spawn a whole series of separate operating companies to provide copies of WU's services in the US, nationally at first and then internationally, followed by a variety of other new services made possible by high technology and liberalisation in telecommunications.

The first service to go live is WU Priority Mail, in which a standard letter is merged with a personal message and labelled from a mailing list. This is similar to the Post Office's Electronic Post service, started in London and Manchester last year.

Links have already been set up with this service for the first two mail shots - for the Department of Industry's Information Technology Year campaign and for ECC subsidiary Haven Holidays. Based on computer facilities offered by its ICL 2956 and three ME29s, the group aims to build up to a part-time workforce of 350 over the next five years. It currently employs six.

David Craver adds: As a potential site for overseas investment in the electronics industry, the UK comes out top of the table in a survey of US companies.

But a withdrawal from the Common Market would change the outlook considerably, with nearly half of those now making the UK their first choice saying that leaving the European Community would make this country unsuitable.

The survey, by the organisation Electronics Location File, also shows a remarkable buoyancy within the US electronics industry, and of the 508 companies questioned, more than one in three has plans to establish overseas operations by 1985.



CURRAN... NAS is nudging Amdahl in market share.

## PCMs in market share row

by Boris Sedaceo  
PLUG compatible mainframe manufacturers are becoming increasingly edgy about their relative market shares as they try to convince users of their viability as alternative suppliers to IBM.

Claims by Olivetti last year that it is number two to Amdahl among European PCMs have produced a flood of statistics from its rivals. Now National Advanced Systems claims to be in second slot by some measures and ahead of Amdahl on others in the increasingly tough fight to establish a permanent presence among European IBM users.

Olivetti is using its corporate muscle to subsidise an entry into the plug-compatible business, where it sells Hitachi mainframes at the OH5500 range.

But the company's claims have been rebuffed by both NAS and Magnuson.

John Curran, newly-appointed vice president for European marketing at NAS, says his company is nudging Amdahl in market share. "We're higher in terms of units installed, equal in revenue terms, though lower in nips (million instructions per second) installed in Europe than Amdahl."

Curran's careful definitions of market share include a nips rating as a way of comparing companies which supply different numbers of units with different processing power.

"We have a total installed base of 219 units, the largest out of any PCM in Europe, representing more than 400 mips. We grew by

60% in 1981 and installed 51 units of which 27 were NAS machines and 24 were Hitachi. We also increased our UK installed base by 50% from 17 to 25 units."

Mike Tucker, Magnuson's managing director, claims that his company's installed base also exceeds that of Olivetti. In a letter this week, he quotes a Nephron survey which puts Amdahl market share at 45.5%, NAS at 35.5%, Magnuson at 18%, Olivetti at 7% and BASF at 4%.

Meanwhile, Olivetti's managing director Derek Lewis last week clarified his company's position, saying that he was referring to machines installed in an order when he referred to the 12 new users in 1981, rather than machines installed.

## NEWS BRIEF

### GLC spends £3m to speed fire calls

THE Greater London Council is spending over £3 million on a computer system expected to halve mobilisation time of its fire engine units from an average two minutes to one.

The computer, which will be installed by the mid-1980s, is made by Marconi Space and Defence Systems, and will be programmed with a street map of London, as well as data on availability of appliances, crew and equipment.

### Japan tax link

JAPAN has become the first country to link to British Telecom's Mureux International financial transmission service. The link is operated from 14 offices in the UK which offer collection and delivery of A-sized documents post, next-day or overnight service.

### Triple storage

NEW hardware and software for the six-month-old ICL System 2 computer will triple its total capacity to 1 Mbyte, and will provide a 'T' computer through which local VDU's and printers are connected in the System 2. It is able to support up to 40 terminals. So far ICL has taken orders for System 2's.

### Speed changer

THE irritating exception to the non-practice that viewdata is by using split-speed transfer - 75 bits-per-second one way, 1,200 the other - has been overcome by London-based telecommunications company Douthett L. Electronics. It has developed a 110 speed changer for gate builders to insert between viewdata modems and data port on computers or conventional terminals in their networks, to provide symmetrical 1,200 bps input and output.

### System X order

BRITISH Telecom is to order a further 29 System X exchanges for installation over the next six years, bringing the total to 50. The exchanges will be installed in eight towns from Edinburgh to Guildford by the main UK telecommunications manufacturers, STC, Plessey and GEC. The order includes for OMC operations and maintenance centres which monitor and control the operation of exchanges in the areas.

Howard Karten reports on how America greeted the historic close of the IBM and AT&T anti-trust suits



LECHT... "I call it a clear and decisive victory for AT&T."

## 'First viable IBM competitor' is let loose on the market

BACKED by its huge resources, the newly liberated US telephone giant AT&T will represent a potent competitor in the world computer industry, say US observers.

Until the anti-trust case was settled, AT&T was the largest company in the US. With assets estimated in excess of \$125 billion, arguably the world's finest R&D lab (it invented the transistor), and more than one million employees, the firm controls more than 80 per cent of all phones in the US.

The company is unwilling to reveal any of its future plans but current work at Bell Labs, its huge R&D arm, promises initially some interesting enhancements for the telephone service.

Among its innovations have been an early demonstration of a voice mail system, speed dialling, the use of the telephone system to monitor temperature and environmental conditions in buildings, call forwarding and call waiting, and similar services.

Other research aims at developing new ways of transmitting information - by phone. With AT&T now free to do "whatever it wants" in the words of AT&T chairman Charles Brown, that might include retrieving information from encyclopaedias, maps, wire services, and other material.

Bell Labs has been a leader in speech synthesis and voice recognition, and often comes up with helpful computer-based devices and services for the handicapped.

The lab is also believed to be mounting a significant effort in distributed data processing, which would be a natural tie-in to the sophisticated distributed computers that in effect constitute the long-distance network.

For the time being, however, most observers seem to be cautiously waiting and watching to see what happens in the wake of the settlement of the anti-trust suit, which came to a sudden, unexpected termination on January 8. And now Justice Harold Greener

at a Federal District Court in Washington seems to have thrown a spanner into the works, with the announcement that he is locking the settlement pending his review. The judge, who had been hearing the anti-trust suit, has this power under a 1974 law, enacted following a widely questioned settlement of the US government versus ITT.

But there seems little doubt that the company will go ahead and sell off its low profit telephone operating companies, and make a dramatic entry into the data communications field.

Meanwhile, lawyers pore over terms, and businessmen make plans to launch or enhance other telecommunications businesses. Although there is general agreement that costs for local subscribers will go up, the effect on the telecommunications and computer industry is far less certain.

Charles Lecht, the head of consulting firm Advanced Computer Techniques and maverick guru of

the industry, observed: "Most people are calling it a settlement - I call it a clear and decisive victory for AT&T. They have got rid of the (less profitable) part of the business and plunged headlong into the computer industry with a lot of high technology. They really have created the first viable IBM competitor in the US."

The statement of Glen Haney, vice-president for strategic planning and development at Sperry Univac, seemed typical of the reaction of large firms which might be affected.

"During the process of divestment over the next 18 months or so, our major concern will continue to be that there should be no possibility of cross-subsidisation between deregulated portions of AT&T. Such an advantage exploiting the monopolistic position that the suit was intended to correct, would create a threat not only to Sperry Univac, but to most other vendors in the computer industry," Haney observed.

## US industry yawns as IBM case is dropped

FOR the most part, domestic industry has reacted with a yawn to the conclusion of the US Justice Department case against IBM. Thirteen years and four administrations after it was filed, the Department concluded two weeks ago that its case had "no merits."

The reaction from Burroughs was typical of those from the industry. "Planning at Burroughs has always assumed intense competition. It appears we were right," said Michael Blumenthal, president and chief executive officer for the company in Detroit. "We have long felt the marketplace is where decisions should be made."

Glen Haney, a vice-president for strategic planning and development for Sperry Univac, said, "The ending of the suit against IBM is a relief for the industry... now that the suit has ended, we are in a better position to assess our competitors' posture in relation to both markets and products without having to consider such major and unpredictable events as an IBM divestiture."

The Garner Group in Stamford, Connecticut, noted: "The



BLUMENTHAL... "The marketplace is where decisions should be made."

Department of Justice should have recognised many years ago that it had no case. IBM management had not had the Justice Department in mind in any decision made in years. Last Monday morning in Armonk, it was business as usual."

However, some IBM watchers were still willing to predict that IBM may be preparing to move into new fields, such as robotics and the service bureau business.

## Slump in programming

by Maggie McLeiding  
DEMAND for the average programmer is decreasing steadily, according to Bill Coudrey, managing director of Reward Regional Surveys.

Figures produced by RRS in a national analysis of salaries and wages support his opinion, showing that pay increases for programmers have dropped from 6% to 2% over the last six months. Increases for analysts have also been reduced, but not to such a degree: from 9% to 5%, and from 8% to 6% for senior analysts.

"There is still a high demand for the analyst programmer with specialist skills," commented Coudrey, "but the trend is towards buying in packages."

DP staff working for companies involved in North Sea oil are now the highest paid in the UK, closely followed by those in food, chemical and service industries based in London. The lowest paid areas are the Midlands counties, with the West Country a close second.

Pay increases in the industry have fallen dramatically throughout the country, and Coudrey thinks they will continue to drop. "Companies cannot afford to give 15 or 16% increases and remain competitive," he said.

A surprising statistic turned up by the survey was the number of one-man DP installations in existence, and Coudrey expects this to increase considerably over the next few years.

## Big private PABX speed-up

by Donald Kennett  
THE choice of large PABX's available for private supply is to be widened in advance of the government's scheduled liberalisation, thanks to British Telecom's agreement to evaluate test installations of equipment from six companies by the end of the year.

The first six manufacturers have been picked from an initial list of 29 companies that were invited to submit equipment. They are the new joint venture Ferranti GTE, the last growing small Canadian company Mitec, Harris Systems of the US, ITT, Philips and Plessey. Ferranti GTE expects to have its first trial installation running within the next two months.

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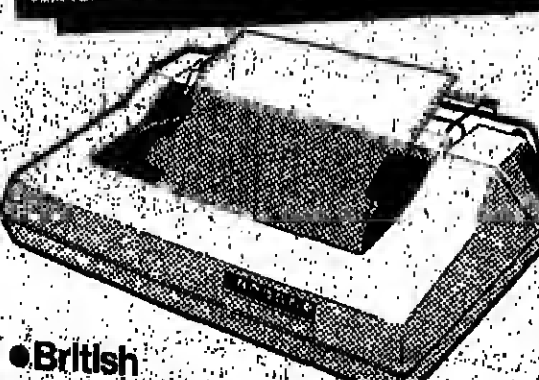
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## SALES BRIEF

## TI system serves 22 institutes

ONE of the largest installations of a Texas Instruments computer system in the UK has gone to the Agricultural Research Council where it administers the funding of the 22 research institutes in England and Wales.

The configuration is a Texas Instruments DS990 Model 30 with 1 Mbyte memory capacity, 22 terminals, three Model 810 printers, one LP600 line printer, two LQ45 printers, magnetic tape drive, dual floppy disc unit and two 200 Mbyte disc drives.

## 100th sale

CII HONEYWELL HULL has sold its 100th computer, a DPS 7 series, to Adidas of Alsace, France. It will replace two existing CII-HB 7735 machines to run sales management, production control and personnel administration and will be at the centre of a network of 40 terminals controlled by four CII-HB Mini 6 minicomputers.

## Swiss supplier

ADARAS Software has installed a Combit ESP41 IBM 4341 compatible processor in its Derby office. The machine, with a two-Mbyte main store, was supplied by the Swiss company Software AG and will be used with Storage Technology disc and tape drives and ITT VDU's for software development, user support, administration and training.

## Traffic control

PHILIPS has won a contract worth £2 million over two years to design and install a traffic control system for Glasgow. Philips previously won a contract for the Glasgow urban motorway signalling system. The traffic will be based on a Philips P875 mini-linked to 231 outstation transmission units running 400 traffic signal controllers and providing facilities such as a fire-fighting routing program, diversion routing and car park information.

## India first

FIRST export sales for System X may go to India, where GEC has been chosen to bid. British Telecom has always regarded the country as a priority market, and India last September deferred the closing date for tenders until March 31. GEC is being joined by its partners in British Telecom: Indian Systems, Plessey, STC and British Telecom itself.

## MoD system

THE Ministry of Defence has ordered turnkey signal processing system from the specialist software house Prolog Computer Consultants of Picheham. The system will be based on the recently-launched 32-bit SBL 32/2750 from Gould subsidiary SBL Computer Systems. This will be Prolog's first installation based on an SBL machine.

## Brewing up

FRIBRIGHT Computer Services has won a £95,000 order to design and install a computer system for Molelands, a brewery based at Abingdon, against competition from IBM and ICL. A Honeywell Level 6 microcomputer with ten terminals will be used for sales order processing, stock control, distribution, despatching, purchase order register and purchase ledger, sales invoicing, analysis and sales ledger.

## Hong Kong link

SIA Computers has ordered two Prime Computers - a 550 and a 750 - to be installed at its Hong Kong and London offices. The former for time sharing services and the latter to link to the Hong Kong processor through Prime's interactive network system.



COLLINS... "We've concentrated on giving the end user support."

## 'Robust' Unix products help meet the shortage

by Claire Gooding

A CITY-BASED firm has leapt in to meet the shortage of commercial applications in the rapidly expanding market for the Unix operating system.

The company, CDS, has just released its Datapower database and a word processing system called Wordpower for use with Unix.

"Unix has a great number of facilities, but we have concentrated on making things watertight and giving the end user support," explained John Collins. He implemented the CDS products by refining on existing research products and making sure that they could stand up to unsophisticated end users.

Manufacturers have been readily buying Unix from its owner, Western Electric, for everything from 16-bit micros to IBM 4341 and Amdahl mainframes, but robust applications have been in short supply. Because Unix experience tends to be in scientific and academic fields, the commercial progress of the operating system has been held up.

CDS was set up to take advantage of the Unix boom by director David Sanderson, who says he took a long hard look at the market and set about filling the gap with a strong team of commercial, technical and academic expertise. The City connection persuaded Western Electric to grant the first UK vendor licence for the cheap Unix follow-up System III, he says.

Now the combination has stolen a march on other systems houses by being among the first to announce applications.

"After a visit to Western Electric we were persuaded that it

## Control on shop floor

by Claire Gooding  
PRODUCTIVITY on the shop floor is the latest area to be tackled by Unix, which is concentrating on vertical markets as a way of increasing software revenue.

The shop floor control system is called Unipac, for Universal Production Activity and Control System. It is designed to deal with all aspects of shop floor control, not just planning.

The system works from one common database so that all three areas of work order management, labour and facilities control, and material management are centrally controlled.

The system is modular and works with many giving users without computer experience the option to work on a question and answer basis.

It runs on the V77 minicomputer as a free-standing system or in distributed processing mode. Average cost is about £25,000 for a one-time licence with a £1,500 per option.

was an area of significant growth,"

said Sanderson. "It's exciting because it offers such wide facilities next to other OSs, as well as being easy to use and portable between mainframes and minis."

"There's a great need for portability," explained "programming

manager Andrew Twigger.

"People buying in the mainframe and mini markets find that they can't move to smaller, cheaper machines, and although there are plenty of applications for micros, there are severe limitations in running them."

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## 'Prestel for blind' and Apple II CIS Cobol take 1981 Rita Awards

IMPORTANT new awards for the computer industry have been won by a device for the disabled and by one of the trail-blazers of British exports.

The Recognition of Technology Achievement (Rita) Award for hardware innovation has gone to Braille, a terminal which allows the blind to use Prestel. The Rita for a software product has been won by software house Micro Focus for its CIS Cobol on the Apple II.

Both awards were sponsored by Computer Weekly and were made as a result of voting by Computer Weekly readers at the end of last year. They were presented at a ceremony in Birmingham earlier this week by Minister of State Barney Heyhoe.

The awards were organised on the lines of Hollywood's Oscars. Readers were asked to submit nominations for the two categories of hardware innovation and software product for 1981.

Nominations were then narrowed down to three in each category by a panel of experts comprising Peter Hall, president of the British Computer Society, David

Fairbairn, director of the Video Computing Centre, and Dr. Eyleyons, director general of the Computing Services Association.

They selected Braille, Recognition's Teleputer and the Sigma 2281 in the hardware product category, and Apple II CIS Cobol, Micromodeller sold by Intellinet (UK) and See-Why from R Systems in the software product category. Readers were then given the chance to vote.

Their choice of Braille was particularly appropriate one for 1981 Rita since last year was International Year of Disabled People. Braille was developed by microcomputer manufacturer, Clark and Smith and allows the blind to access Prestel over a telephone line.

Assistance with its development came from the Royal National Institute for the Blind (RNIB) in the Manpower Services Commission, and it was developed in the co-operation with Prestel.

Micro Focus is also a past winner, since it has been at the forefront of software exports and has recently won a Queen's Award for its achievements.



HANNA... "We are now in the computer business."

## ITT set to challenge IBM in personal computer market

by Robert Parry

WITH its British-designed and German-built 3030 microcomputer, multinational conglomerate ITT is set to take on IBM in the personal computer market. The machine replaces the 2020, a version of the Apple II built by ITT under licence.

Hardware has been on sale in France and Germany since last October, but the UK launch was delayed until now so that application software would be available. It will be marketed in the US, though when has not yet been decided.

"We are now in the computer

business," says Herbert Hanna, managing director of ITT Consumer Products UK and European director for microcomputer systems.

He thinks the 3030 superior to the IBM machine and views the 2020 exercise with Apple as a way for ITT to gain experience in design its own system.

"We went in to learn the hard way," he says. All 2020s have now been sold by ITT and no more will be made.

The result of four years' learning, the 3030 is a modular system starting from a twin floppy

machine with keyboard, Z80A processor and 64K RAM costing £2,500 with software.

Operating systems standard with the machine are CP/M and MP/SL's BOS, allowing application packages in MicroCobol. Packages for word processing and database, Autowriter and Autindex are included in the basic price.

Various VDU's and printers can be attached and external memory can be expanded by adding a third floppy drive and one or two 5 or 10 Mbyte hard discs. Internal RAM can be increased to 256K.

The standard Z80A processor

can be replaced by an 8086, but Hanna does not see this happening until September because of the scarcity of 8086 application software.

Multi-user capability should be available by March and colour terminals and videotext links added later in the year. Expansion is simple as the system is based on Eurocard standard modules.

Marketing the 3030 will be through microcomputer dealers and software houses via ITT Consumer Products and direct to large business users by ITT Business Systems Group.

## LAMSAC helps councils cut computer costs

by David Craver

HELP for local authorities to cut down the cost of developing their computer systems is coming from LAMSAC, the Local Authorities Management Services and Computer Committee. A survey is being made of 125 local service departments as the first step towards developing a software product. If

the initial scheme works, it is likely to be extended to other areas.

The survey, the results of which should be compiled by March, follows from the setting up of a Social Services Computer Applications Group by LAMSAC at the end of last year. If there is sufficient interest from local authorities, work

will begin on the package, possibly through the National Computing Centre's software products scheme. The NCC has expressed a willingness to discuss the project, which could eventually lead to the placing of a contract with an outside software house.

LAMSAC has developed products before using outside pro-

gramming, with participating councils sharing the costs. A package is about to be released which will enable councils to analyse the latest population census data. That contract was won by Durham University. Another software product is a planning system used by the London authorities for the analysis of property management.

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## Baseband/broadband converter from 3M

by Donald Kennett

ONE way of resolving the conflict between broadband and baseband local area networking has been made available by 3M's Interactive Systems Group. The company has launched a pair of devices capable of converting baseband networks into broadband ones.

Broadband networks involve the extra expense of radio-frequency modems and remodulators, but can carry different types of traffic, such as television and data, on the same cable by using different carrier frequencies to support separate channels. In baseband networks, where data is put straight on to the cable as a digital signal, the transmission capacity is shared between connections by multiplexing. But in broadband networks each channel can be shared between connections.

3M has been supplying baseband networking equipment for about 10 years and has 30 installations in the UK, but the two types sold previously were designed to a single computer or terminal frequency-division or time-division multiplexed channels. The time-division version has a maximum aggregate data rate of 100K bits per second.

The latest broadband modem, the 5991, can operate from 100Kbps to 2Mbps and can be inserted between the coaxial cable and the network interfaces in a baseband system, thereby freeing the cable to support other types of transmission, such as video or voice, on separate carrier frequencies.

As the best known local network designs - such as the Cambridge Ring and Ethernet - operate at either 4Mbps or 10Mbps, 3M plans to follow up with a 5Mbps modem in June and a 10Mbps one at the end of the year, all priced similarly to the 5991, at around £300 for one to £250 in OEM quantities.

The other device needed to implement a broadband network is the £1,000 remodulator which takes messages from the network input channel and re-transmits them on the output channel for the receiving devices to pick up. This is available now.

In June, in time for the 5Mbps version, the company is planning to launch a range of network attachments designed to support IBM 3270-style communications. IBM 3270 will act as an IBM 3274 controller in communicating with up to 32 ports on the mainframe, while at the terminal end, the £2,275 6708 and the £2,145 6704 will handle clusters of eight and four terminals.

For frequency-agile modems, which enable attachment to access more than one broadband channel, system builders will have to go elsewhere or wait until next year for 3M's version.

## Intergraph aims high with low-end system

by David Craver

THE company which claims to have climbed in the past year to the world's No 2 position as a supplier of turnkey computer aided design and manufacture systems, Intergraph, has launched a new system at the bottom of its range which is expected to give it an even bigger market share.

"Nice, but rather expensive" has been the usual verdict on the Intergraph CAD/CAM systems, says Trevor Postlethwaite, managing director of the American company's UK subsidiary. But the new interactive three-dimensional graphics design system, the 2302, which is built around a Digital Equipment Corp VAX 11/23, makes Intergraph's equipment available to more designers.

Intergraph took one-third of Computerworld's market in the

UK last year. Postlethwaite claims, while at the same time doubling its sales to \$10 million in its second year of operation in the UK.

Worldwide revenues climbed to some \$108 million in 1981, and he thinks that is enough to give Intergraph the No 2 position behind undisputed market leader Computerworld.

But with the other contenders such as Appleton being taken over by Schlumberger, and Calson merged into General Electric of the US, he doubts that the figures will be released to prove his point.

Postlethwaite predicts a 50% growth for Intergraph in the UK in 1982, with "business really booming".

The new model, the 2302, costs about £17,000 for a basic configura-



## CTL's desk-top sales set for speedy take-off

by David Craver  
AFTER making only eight sales since entering the OEM market last June with a high-performance desktop computer system, Computer Technology of Hemel Hempstead admits to having been over-optimistic about how quickly it could achieve volume deliveries.

But sales of the highly praised 16-bit desk-top computer from Convergent Technology of California, for which CTL acts as the UK distributor, are now running at about one a week.

And by March 40 systems will be delivered, with a "conservative estimate" of 200 systems in the plans for next year, according to Howard Parkinson, director of the OEM division.

"Interest is very high," Parkinson says, "and the prospect level is significantly greater than anything CTL has ever had before." The Convergent system is designed for distributed computing in a high speed local network.

Each workstation has its own 16-bit Intel 8086 microprocessor, 1 Mbyte of memory and a screen, with up to 17 stations clustered in a group.

Convergent Technology, the two-year-old Californian OEM which manufactures the systems, has signed long-term contracts with Burroughs, NCR, TRW, Santa Corp, and Thomson CSP of France, as well as a major procurement with the US Department of Transport through a Virginia software house.

As a private company which is expected soon to go public, Convergent president Allen Michels is reluctant to give many details of the company's operations. But he does say that over 1,000 machines have been produced so far, and the company has recently moved into a new 77,000 sq ft manufacturing facility, bringing total capacity to 100,000 sq ft.

There are plans to expand further, and Michels says there will be no problem in meeting the demand for systems. The contract with Burroughs, which entails a "very large" number of systems, a seat on the board and the potential for an equity stake, does not mean that Burroughs will gobble up the company.

"Not at all," claims Michels, who says Burroughs can only take up the option for a shareholding when deliveries reach a certain level, and then it will only represent a few per cent stake. Burroughs will release its small business system, codenamed the B20, in the spring.

NCR is basing the word processor which represents its entry into office automation on the Convergent machine, and TRW will distribute the system in Europe as a replacement for the Datapoint line.

TRW recently sold Datapoint distribution rights back to Datapoint Corp. Thomson CSP is expected to distribute in France, but the nationalisation of this company leaves the agreement in doubt.

Michels was enthusiastic about CTL's prospects - an "outstanding company," he says, which he hopes will "replicate for us in the UK the same success we have had in the US."

In the next few months, CTL will release Convergent's latest product, an application workstation which costs about half as much as the more powerful system. Based on the Intel 8088, it comes with built-in Winchester and floppy disc and is fully compatible.



FIELD... Another 200 this year.

## Ontel word processor now costs 20% less

by Maggie McLening

REDESIGN of the Ontel word processor has resulted in a 20% reduction on the price of the widely-used Datatext stand-alone word and information processing system.

Formed in 1979 specifically to market Ontel equipment, Surrey-based Datatext now has more than 1,600 installations in the UK, and customers include Barclaycard, Shell, ICI, British Airways and British Caledonian. Prime also buys Ontel word processors to attach to its computers and sell as turnkey systems.

Changes in the manufacture have been mostly in the structure of the casing, and there are two new keyboards to choose from. Compatible with existing Datatext installations, all the features of the previous system have been retained and command stringing and

mathematics facilities added. Twenty of the new word and information processing systems are on order, and Derek Field, managing director of Datatext, is confident that a further 200 will be sold this year by his six-agent network in Norwich, Newcastle, Sussex, Hertfordshire and Surrey.

The terminal is machine programmable by the user, and Basic, Cobol, Fortran and Pascal compilers are available, also OPL, Ontel's version of Cobol. In interactive mode, it is compatible with ICL C03 and IBM 3278 protocols.

Configured around 8085 architecture, integral serial and parallel adaptors allow cluster operations with multiple terminals accessing mass storage units. Datatext is offering a desk-top terminal with disc drive housing two quadruple density mini-diskettes and a daisywheel printer for £5,300.

## Barclays squashes the opposition in user tournament final

BRITAIN'S computer professionals proved their skill as amateur sportsmen last weekend in the finals of a year-long squash tournament aimed specifically at computer users.

And with teams from two banks and an insurance company among the last four, they also demonstrated the sort of employer you need if sport is high on your list of job attractions.

Barclays Bank, National Westminster Bank and Hambro Life Assurance joined Lancashire County Council for the final two rounds of the 1981 Wright Line Squash Tournament.

Winners were Barclays, who beat Lancashire County Council three matches to love in the semi-finals and then saw star player Elliot Stuart overwhelm Hambro's Brian Hanson in the deciding match to win the final 2-1 and the championship.

Stuart is a systems analyst and assistant project controller with Barclaycard, and a former England badminton international. He was

unbeaten throughout the tournament.

Wright Line is the US design range of equipment for storing computer media manufactured and sold in the country by the Carter-Pearce Group. The group launched squash competition in 1980 and has been publicising progress via advertisements in Computer Weekly throughout the year.

"We hoped to get 25% more," says Carter-Pearce chairman, E. E. "But there were many applications that we had to change plans to allow for the complete extra round."

The competition was not until narrowed down to the final four by the first round of play. On their way to the final, Stuart and fellow analysts Ian Penberth and Bob Taylor, with ne players Neil Winward and Alan Rosedale, disposed of 12-1 from the Driver and Licensing Centre at Swettenham from engineering group GEC.

In the final Rosedale, for the absent Taylor, was down in his best of five match with Hambro's Elliott Stuart, but fought back to win.

Penberth was beaten by Hambro's Gordon Golder, first defeat of the champion, square the final at one match before Stuart clinched the and £50 individual cheque Barclays.

After the final the team given a lesson in real squash by British professional champion Philip Kenyon.

Kenyon then became the first at an impromptu song and dance from Penberth and his wife Alan Rosedale. Suffice it to say that both would find rather a fortune through the squash.

The next Wright Line Squash Tournament is to be held in the Details from promoters: Suite Penthouse Suite, Turf Hill Road, Great West Road, Brentford, Middlesex TW8 9HZ. Tel: 0181 2257. Telex: 934138 ref 5708.



Tournament winners Barclays Bank with prizes. Captain Alan Rosedale (back left) and Ian Penberth, with (front left) reserve Neil Winward and Elliot Stuart.

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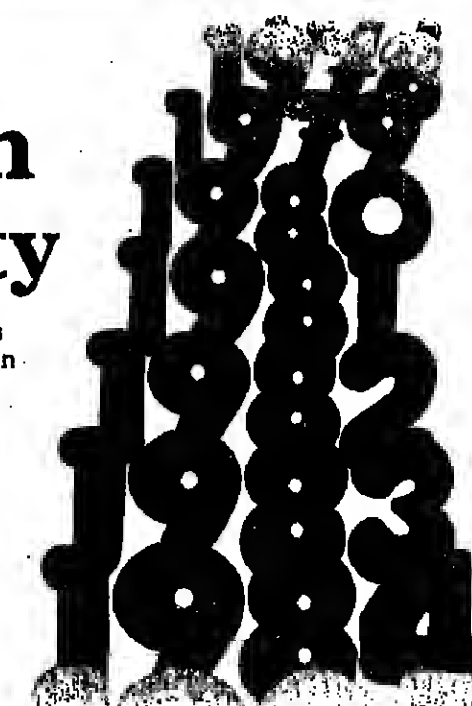
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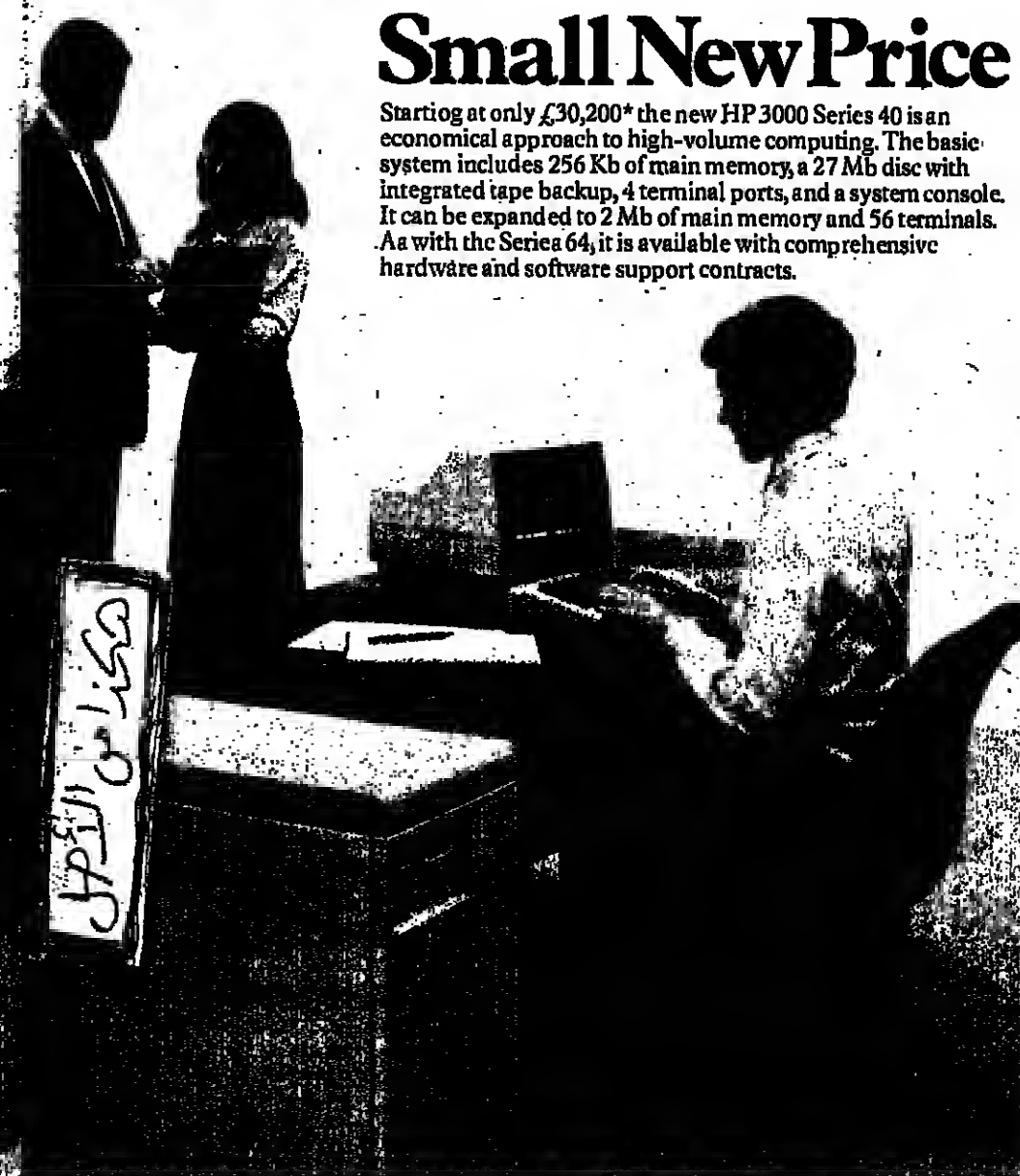
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## Small New Price

Starting at only £30,200\* the new HP 3000 Series 40 is an economical approach to high-volume computing. The basic system includes 256 Kb of main memory, a 27 Mb disc with integrated tape backup, 4 terminal ports, and a system console. It can be expanded to 2 Mb of main memory and 56 terminals. As with the Series 64, it is available with comprehensive hardware and software support contracts.





# 'Cheap local net has edge on faster systems'

by Donald Kennett

FOR some time to come, low-speed local area networks will grab sales in preference to the higher performance systems such as Ethernet and the Cambridge ring.

This is the view of John Grant, technical director of Cambridge-based design consultancy Nine Ties Information Handling which has announced a local networking designed to support communications between computers and terminals at up to 19.2 Kbits per second.

The ring, called Multilink, operates on a single twisted-pair cable, carrying data at 250 Kbps, and users' equipment is connected to it via RS232 interfaces.

Grant believes that the price of about £300 per network interface will give the ring a significant advantage over the much-publicised but expensive systems, while the data rate of 250 Kbps will support a large number of applications for links between terminals and computers.

Grant is lining up subcontract manufacturers and distribution deals aimed at having the first systems available by the end of March. Development plans include building a library of routines to run on a variety of attached microcomputers, a filestore implemented on a micro (with a hard disc and a high-speed parallel interface to the network code) and a software system which will support online sales.

order input while producing invoices and packing documents at the same time.

Call set-up and data transfer routines have been running in micros including an Apple II, a Zilog MCZ, a Newbury Newbrain and a Transam Triton to demonstrate the prototype.

Grant contests the argument that says a 10-Mbps rate is necessary to serve enough applications to stimulate high volume, and therefore cheap production. "There is plenty of volume at our level of capability," he says. "I am not sure that standards on the ring are so important either, so long as you can make a low-cost device."

"It is in the conversation between the station which sets up the call and the device it is calling that there is a hole in the standards."

"Provided we get enough systems out in the field, we will set a de facto standard there. As we were involved in the production of the Basic language used on the Sinclair ZX80 and ZX81, our software is used by more people than anyone else. And ICL is talking about making it their standard Basic."

As volume production and the use of integrated circuits bring down the costs of Ethernet, the costs of Multilink should come down too, he adds. "There is quite a lot of circuitry we could put in a ULA. The Americans have done a great deal of talking, but not much in practice."



Butland (left) was quick to find a Japanese agent at a Tokyo conference last year.

## Varsity sets up in business

by Maggie McLaughlin

BRADFORD University Software Services, BUSS, a company formed by the university to market an internally developed graph plotting package, is now funding itself from sales. Consisting of ex-full time university staff, the company is led by David Butland, manager of the Simpleplot project, who describes himself as a "sort of director."

"The university is quite pleased to be shedding staff, and at the same time doing something of

value to industry," he explained. Simpleplot Mark 2 offers two-dimensional graph drawing facilities including linear logarithmic and normal probability scales, histograms, and plotting of polynomial functions. It runs on any system offering standard Fortran IV and will drive any graphic device.

A presentation of the package was given at the Information Technology Conference and Exhibition in Tokyo in November. This has led to BUSS finding an agent to

market the product in Japan.

There are currently 120 UK installations with Simpleplot, including British Leyland, the Wellcome Foundation and several local county councils and water authorities.

A Pascal version, Paimpleplot, has also been developed, and BUSS is setting it up on ICL's Perv system.

The price of Paimpleplot is expected to be slightly more than Simpleplot, which costs £900 including one year's maintenance.

## NEWS BRIEF

### NatSemi profits slump

NATIONAL Semiconductor, one of the largest US makers of chips and integrated circuits, broke even in the last quarter of 1981. Profits slumped to just over \$1.2 million in the six months ended in December from about \$30 million in the corresponding six-month period of 1980. Falling prices and the strong dollar are blamed.

### First turnkey

WATFORD-BASED business computer systems and technology has sold its first turnkey system. It is an IBM 4341 sales order processing and stock control system based on a Prime 2502, to Imo Precision Controls to speed the handling of its 5,000-line product range.

### New user group

A USERS' group has been formed for companies with Monotype Communications word and data processing systems. Founding members are Anthony Platt, assistant registrar of the University of Essex (0206 862286), and Ronald Watson, solicitor of Bedford-based Conquest Chambers (0234 56611). More than half of the nearly 200 users in the UK are said to have expressed interest in joining.

### Perq printer

A GRAPHICS printer for the workstation in available following the announcement by the Three Rivers Corp that its Perq interface has been developed. It will manufacture and distribute the Perq in the UK. The desktop plain paper printer is priced at US \$15,000.

### More minis

TEXAS Instruments has extended the high end of its DS990 range of minicomputers with three new models - the Models 16, 28 and 36 which use the DS800 and DS900 high-speed large-capacity removable disc drives, with starting prices of £41,890, £57,320 and £61,000 respectively.

### Net processor

ADVANCED Computer Techniques Corp (ACT) has announced a network processor based on a Honeywell Level 6 minicomputer, which may be configured as a remote concentrator, cluster controller or message switch, and may serve as a node for a distributed computing system.

### Oil system

OIL refineries owned by Esso, Amoco, Gulf and Texaco are now using a planning and scheduling system from Seicom Computer Services, a subsidiary of BP. Offered on either a service bureau basis, or to run on a user's own computer, the system is written in Fortran for IBM 3033 equipment.

### Name change

TYLIN PEOPLE, the Tate & Lyle subsidiary which supplies contract computer staff to DPs and parients in the group and to outside companies, has been renamed TLP. TLP is what is left of Tylin Management Systems, the Tate & Lyle computer bureau which was sold to LA Computer Services.

## MICRO NEWS

# EEC to provide £24 million for R&D projects

by Boris Sedacca

THE European Community is inviting proposals for research and development projects into microelectronics from companies in member States, and will provide support worth £24 million for 1982, the first year of a programme which will extend over four years.

Projects eligible for aid are direct optical stepping technology, electron beam direct writing on wafers, plasma etching, testing equipment for integrated circuits and computer-aided design for very large scale integration.

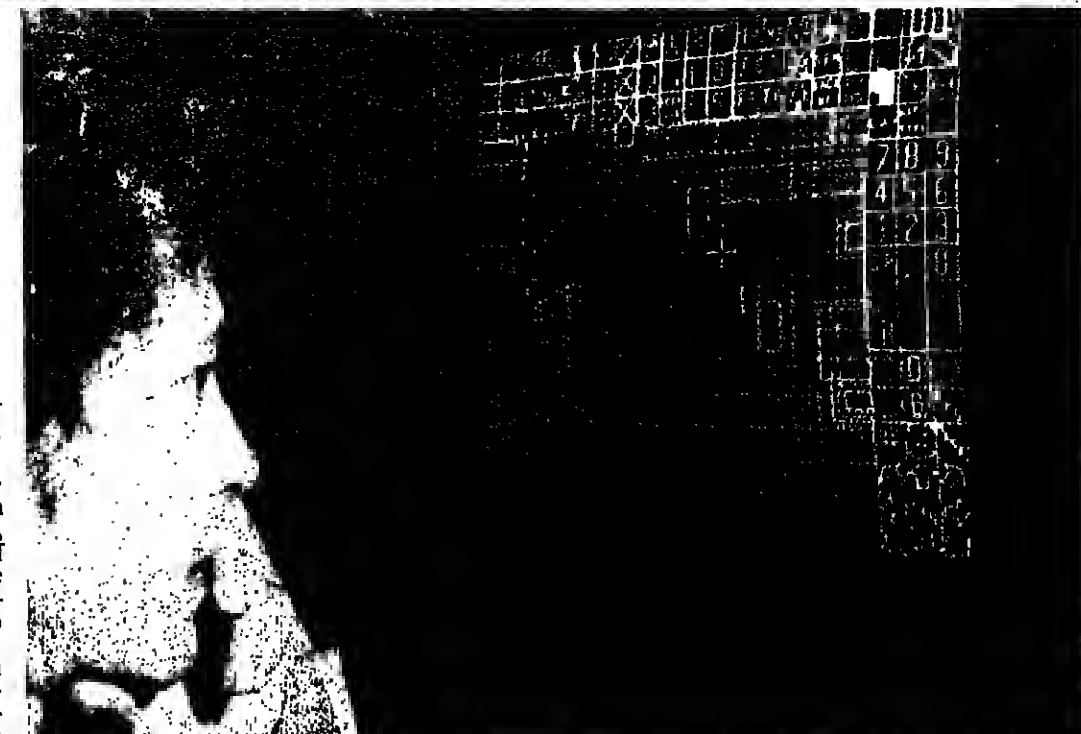
The European Community appears concerned that it will be left out of these advanced fields of technology. It relies on imports to provide 80% of a European market for integrated circuits worth about £800 million a year, which means that existing European producers are not big enough to put up the necessary level of investment into

these technologies. The decision to adopt the scheme was made at a session of the Council of Ministers in Brussels in early December last year.

The scheme is aimed at restoring the balance in the European market for integrated circuits, according to the Department of Industry. Each project will involve firms in more than one Community country, and will apply to both manufacturers and users.

Universities and research centres can also qualify for assistance in the area of computer-aided design for VLSI research and development. Support will normally cover 30% of the cost of a project, but up to 50% support may be granted.

The European Parliament in Strasbourg originally earmarked £30 million for the first year of the scheme with the possibility of member States contributing a



Computer aided design for very large scale integration is among the areas earmarked for support by the EEC.

further £30 million, but no indication has now been given that the full £60 million will be provided.

A spokeswoman for the DoI would not comment on expenditure plans beyond the £24 million committed for the first year.

"We are taking in proposals during the year and decisions will be made by the end of the year as to who gets accepted. The money will then be paid out over the four years of the programme," she said. The European Commission

hopes to raise the member States' share of the world production of integrated circuits to 12% by 1985 - still well below expected European demand, but representing a total sales increase of more than £1,000 million.

## Interface loop gives boost to hand-held systems

HAND-HELD computers from Hewlett-Packard have received a boost to capability with the release of an interface allowing HP-41C and HP-41CV devices to control and read data from instruments and peripherals.

Called the Hewlett-Packard interface loop (HP-IL), it uses two-wire cable to connect up to 961 devices in a serial loop, with up to 100 metres between devices. A master controller looks after traffic

of commands and data among devices on the loop at five Kbytes per second.

Commands are received and retransmitted by each device, but only acted upon by the specified device. An accessory poll feature allows users to write programs requiring a printer, for example, without having to know the address or location of the printer to be used.

The controller will automati-

cally select an appropriate device on the loop.

To demonstrate HP's commitment to the idea of the interface loop, several divisions, concerned with calculators, computers and instruments, will be bringing out HP-IL devices. Current offerings include a 131,000-byte digital cassette drive, a 24-column thermal printer, a fully programmable digital multimeter and a converter for building into equipment such as

measuring instruments to allow control through the loop.

An interface card for the Series 80 personal computers allows communication between the hand-held HP-41 and HP-85 or HP-83 personal computers. Applications seen for this include using the personal computer to store and analyse data collected in the field on the hand-held device.

Another new hand-held computer, Sharp's PC-1500, offers a

variety of features. It has a programmable dot matrix liquid crystal display, 16K of system ROM containing Basic, 2.6K of user memory extendable to 6.6K and user-definable keys. The Basic version can handle two dimensional arrays, program chaining and graphics commands among other things.

An optional printer gives four-colour graphics, nine character sizes and plotting capability.

## Graphics for less than £200

MICROCOMPUTERS can now have graphics features previously associated with costly peripherals for less than £200, according to robotics research and development company Robocom of London.

A hardware and software system, known as Bit Sisk, lets microcomputer users create multi-colour graphics quickly and easily on a 48K Apple II. A menu, from which items are selected using the three-axis controller, gives automatic lines, arcs and circles in six colours and four types of line. Text can be positioned at any scale, angle or colour in the drawing.

Interface modules and modified software are being prepared for other microcomputers and pre-drawn symbols to cover common drawing applications such as electronics, architecture and typography, will be available on disc.

## First market

EDUCATION is to be the first market sector to be attacked by Positron Computers of Heydock, Lancashire, with its British-built Positron 9000 microcomputer.

Marketing to educational users will be handled exclusively by Positron's first distributor, Griffen and George, a leading supplier of scientific equipment for education.

"We are very pleased that Griffen has chosen the Positron as the micro for education. It is putting a lot of resources behind the promotion," says Peter Loftus, Positron's marketing director.

He adds that Positron is looking for similar associations in other market sectors.

## Ferranti to market gate array designer

by Robert Parry

FORTY years of effort developing dedicated software for the design and testing of uncommitted logic arrays or gate arrays is to be made available by Ferranti to its customers.

Gate arrays like Ferranti's ULA families provide an increasingly popular route to LSI and VLSI circuits. As the devices become more complex they need more refined CAD tools to design the interconnection that allows the array of logic gates to carry out the required functions.

For an entry price of £37,500, Ferranti's ULA Designer gives complete control over ULA designs right up to manufacture in customers' own premises, while taking advantage of Ferranti's established design software. It is claimed to be the first CAD system designed specifically for the design of gate array circuits.

Hardware is based on a DBC PDP-11/23 mini-linked through telephone lines under DBCnet control, to host computers at Ferranti's Manchester microelectronic design centre or in Scott's Valley, California.

Software allows entry of logic diagrams and cell layouts via a



DOWN: Ferranti has 30% of world market in ULAs.

either, checking syntax of logic descriptions entered and the definition of test programmes.

Using the link to the Ferranti host computer, customers have access to software providing complete design verification, without needing their own large computer system - estimated to cost over \$1 million in hardware alone.

"We are not completely certain how many of these systems we will sell," said marketing director Bryan Down, but he estimated sales of 15 to 20 systems in Western Europe, with a larger number likely in the US. Ferranti sees ULAs as the main part of its business and estimates it has 30% of the world market.

## Early retirement hope 'wishful thinking'

by David Craver

THE debate on the implications of technological change - which has put forward early retirement, a shorter working week, the creation of smaller firms, and a shift of resources to the service sector as solutions to technology's social and employment consequences - has been filled with "wishful thinking and ill-informed assumptions", according to a report published by the Town Planning Department of South Bank Polytechnic.

The report, Beyond Generalisations, is based on a series of seminars held following a 1979 national conference on Planning for Automation which was sponsored by the Gulbeonian Foundation.

The seminars sought to shift the debate from what was seen as the largely business and industrial requirements on which the government has concentrated towards wider issues of general social and economic policy.

Looking at early retirement, the report suggests that even a small

reduction in the retirement age to 62 would entail staggering costs, and would be likely to reduce overall manpower levels rather than increase jobs for the young.

In addition, it suggests that one in four of the elderly live on or near the poverty line. For an early retirement to be effective, a large increase in pensions would probably be necessary.

The report also finds no evidence that shorter working weeks have been responsible for job creation. But it does suggest that a shorter working week, by reducing overtime, would increase the number of "low paid" workers by half a million.

The report finds that small firms are "marginal employers, employing marginal labour often in marginal economic activities dominated by large enterprises." As such, they are expected to have little effect on unemployment caused by new technology.

\*Beyond Generalisations, Department of Town Planning, South Bank Polytechnic, Wandsworth Road, London SW9 2JZ. 25 pages, £2.00.

## Seven programs introduced

THREE new microcomputers are catered for in a range of packages from Systematics International Microsystems. The suite of programs, called Financial Controller, consists of seven programs priced at £190 each.

Jovicing, sales ledger, purchase ledger, general ledger, stock control, payroll and financial planning. The package is written entirely in Pascal - unusual in a suite of business applications.

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## Basic-Plus RSTS users

BACmac the RSTS Supercharger

from **ADDS**

BACmac is a simple-to-use, fully automated Basic-Plus to Macro converter/compiler, providing true compilation of Basic-Plus programs. BACmac is operative at over 50 sites worldwide providing users with increased power and performance.

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Basic Plus is interpretive and therefore slow. BACmac, however, compiles your programs and thus dramatically improves execution speed. A user's program sorting 5,000 records using a virtual array workspace exhibited the following CPU usage... (times in CPU seconds):

Basic +2	Basic +2	CSPCOM	Basic Plus	BACmac
(BASIC RSTS)	(BASIC RSTS)	(RSTS)	(RSTS)	(TASK)
801	1075	840	360	201

### Grow greater than 16K

The limits of 16K words of program area is restrictive.

BACmac can, up to a limit, produce runnable task images from programs that will load into memory but exceed maximum available memory during execution. With BACmac, the user program area is up to 28K words (31K with RSTS V7).

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If you write in Basic Plus then you know that decompilation is a problem. BACmac converted programs, however, cannot be decompiled.

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## Racal doing well with half-year profits up 45%

DESPITE the prevailing gloom in British industry, communications company Racal provided a ray of welcome light with half-year profits 45% up on last year.

Chairman and managing director Sir Ernest Harrison told a gathering of City analysts and stockbrokers that the company expects to achieve a full year's turnover of £650 million, up 21% on last year's figure of £536.4 million.

At the same time he revealed that the company had improved turnover for the half-year by 26% to £303.5 million from last year's £240.6 million. Profits for the half-year were £38.4 million compared with £26.5 million at the halfway mark in 1981.

Within this strong performance, however, Racal-Milgo, the company's American offshoot which last year achieved sales of £134 million, suffered a severe dent in its profits as the result of a price-cutting war with Paradyne.

Sir Ernest said that the company had met the competition with across-the-board price cuts early in the year. Subsequently this position had changed as Racal-Milgo readjusted its prices.

Sir Ernest said that he expected the performance in the US, where Racal now has sales of \$20 million to the military, to be much better in the second half.

Data communications devices, of which modems constitute the largest portion, now account for 28% of Racal's turnover and American business accounts for 25%. Five years ago the proportion of American business was 4%.

Replying to questions from brokers, Sir Ernest said that it was difficult to predict what effect the

AT&T divestiture would have on Racal's American business. In a recent settlement with the US justice department AT&T, the biggest telephone company in America, agreed to sell off 23 local telephone companies.

Traditionally, many of these companies had been inclined to buy their communications and other equipment from another giant AT&T company, Western Electric. Much of that business might now go to companies like Racal.

The strongest performance of any company within the group came from Decca, the radar company which Racal bought two years ago. From a loss for the whole of last year of £2.5 million Decca has turned in a halfway profit of £6 million and is well on the way to a full year's £12 million, according to some brokers.

Even here, though, there were problems. Racal has sold off the Decca TV company and is getting some cash in from the debtors which Racal retained.

Decca has been affected by the Ministry of Defence moratorium on defence contracts, but booming exports have contributed to the turnaround. However, the Decca anti boat radar is still giving problems and the company is still trying to get the right products for this area.

Radio communications is about 31% of Racal's business and the company's frequency hopping tactical radio has now sold to more than 40 countries.

Sir Ernest was less happy about the past performance of the strategic radio products but he was able to predict that growth of the strategic radio business would be



HARRISON... Racal-Milgo profits were down, but "performance is better in second half".

about 40% this year. Sales of the tactical radios will total £140 million this year, he said.

On the legal side, the company is still locked in battle with Codex and is appealing the court judgment, which went against Racal. Sir Ernest said that some estimates as to the scale of damages had been exaggerated and that the judgment affected only a part of the business.

He also revealed that Racal had now decided to take legal action against Dutch giant Philips to try to obtain payments for the use of Philips's making of Racal products.

The case being brought by Tmplex is still proceeding, but

Sir Ernest appeared confident that the outcome would favour Racal. He was once the chief European supplier of Tmplex multiplexers, and Tmplex is already sold 60 copies of Microport in the US, and a further agreement with Planning and Technical Services in New South Wales is tapping the Australian market.

In Japan Computerline has taken a different tack after the in-

formation Technology Exhibition in Tokyo last year. Microport was agent with over 70 distributors, has been appointed to deal with the hundreds of inquiries Computerline received. The distributor already deals with products from Microsoft in the US and from British software products firm Micro Focus.

"Business software for micros is something that the US and Japan just haven't got," said sales manager Martyn Champion. "We are probably in advance when it comes to good products. For example, Pert is a technique which is used extensively all over the world."

"Users spend anywhere from £50,000 pa on bureau services planning projects, whereas we can offer an in-house tool more powerful and flexible for a fraction of the cost. Users once needed a thorough knowledge of techniques but micros have taken all that away."

The idea behind Microport was to give users a "black box" product which would not demand any expertise with computing.

Computerline first started experimenting with a micro version of Pert techniques to find out whether the micro really was a threat to its traditional bureau business. "We produced a 'noddy'

## SOFTWARE FILE

### Micro package plans to scoop an overseas market

THE Microport package for project management on micros, already making its name in the UK, is about to find its way into more than 500 installations overseas, following agreements between Microport's originator Computerline and agents in Japan, Australia and the US.

Computerline launched Microport as a cheap alternative to the mainframe services which most project planners were using, basing the package on its own experience in a bureau specialising in Pert, Project-Evaluation and Review Technique.

The product proved a success almost immediately, and Computerline started to look around for overseas sales, encouraged by reports that other countries still lagged behind Britain when it came to using the microcomputer as an effective business tool.

Now it has signed agreements with agents in the US and Australia, both within the "vertical market" of the construction industry. Building consultant R. S. Mead has already sold 60 copies of Microport in the US, and a further agreement with Planning and Technical Services in New South Wales is tapping the Australian market.

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Champion (left) with the British Ambassador to Japan at the Information Technology Exhibition in Tokyo. Sales efforts in Japan are now paying off.

Pert system because we knew the requirements, originally with no intention of selling it. But to our surprise the micro accepted everything we threw at it, with capacity to spare."

As the product evolved Computerline settled on CP/M as the operating system that would give access to the widest market. "We didn't choose CP/M, the market did," said Champion. The product is licensed, rather than sold outright, to keep the company more closely in touch with its specialist market.

Because of the low price bracket associated with micro software, Champion says Microport has to be sold in volume to be profitable.

by Claire Gooding

## Unix users' double reward New option for Series 1

COMMERCIAL users of the trendy Unix operating system who have been waiting for a user group of their own have had their patience doubly rewarded, with two groups formed to serve their interests.

The long-established European Unix User Group has announced the formation of a Special Interest Group, SIG, to represent commercial users. At the same time, the Computer Retailers' Association has also sent out a letter inviting users to join a commercial Unix user group.

In the letter Dr Tim Keen, whose company Keen Computers sells Onyx machines running a Unix look-alike, says that he has been asked by the US commercial Unix organisation IUSR/GROUP to set up a similar organisation in the UK.

The EUUG has been moving towards setting up a commercial SIG for some time. It has traditionally been an academic institution, but the spread of Unix from universities to commercial sites has made new and wider demands on it as new users outside research discover Unix as an ideal multi-user development system.

"We are a user group aiming at users," said EUUG chairman Alan Mason of Heriot-Watt University. "If we are talking about commercial users then I don't see that the Computer Retailers' Association is the right body to represent them."

In the EUUG, companies which count as users can become vendor-members if, like ICL, they "sell-on" Unix as part of a product. But Keen and the CRA seem to feel that the EUUG has not gone far enough for the rapidly expanding

commercial marketplace, and have gone their own way.

Meanwhile the EUUG admits there may be room for both. "I don't regard it as a battle," said EUUG treasurer Emrys Jones. "The thing is to run the two of them and let the users determine what they want."

Both groups plan to hold their first meetings in the near future, to determine just what users of Unix and Unix-like systems want from their user groups.

Details of the EUUG's Special Interest Group's first meeting, which is to be held at the IBBG in London, are available from Barry Jones on Swansea (0792) 29081.

Those interested in the CRA's Commercial Unix Group should contact Dr Keen, chairman of Technical Group, Computer Retailers' Association, Owles Hall, Buntingford, Herts SG9 9PL.

THE Series 1 minicomputer from IBM may be sold with the multi-user Unix operating system as an option, as part of a programme of revamping.

Unix has been implemented on a Series 1 at Cleveland State University, and it looks likely that IBM will take the step of licensing the operating system from Western Electric, the division of AT&T which sells Unix source licences for around \$28,000.

If IBM does distribute the Series 1 with the Unix option, it will be a significant change of operating system policy, because in the past operating systems which "lock in" IBM's users have been a significant part of its software sales strategy.

## EEC into translation

by Philip Hunter

AN £8.5 million research programme to develop a European machine language translation system awaits final budget approval by the European Commission following an increasing shortage of skilled translators and interpreters.

This announcement comes when interest in machine translation has already revived in the US and some progress has been made after the drought of funds for such work caused by disappointment in the 1960s.

It was originally thought that the skill developed by cryptographers during the war could be applied to translation systems, but the complexity of spoken and

written language had been greatly underestimated and early enthusiasm was doused by failure to produce a workable product.

The second surge of effort has been concentrated on specific types of translation such as technical specifications which lack the full flavour of language. A limited success has been achieved, and such a system, called Meteo, is used in Canada to translate weather forecasts from English into French.

The latest European project has the limited aim of translating specific documents where a high standard of translation is not essential and where human translators will complete the job by polishing up on style.

## CAD products for minis

THREE computer-aided design packages have been launched by engineering specialists AB Associates in Florida. For the first time the packages are available to minicomputers including the Prime and VAX ranges.

Super-Spectre performs automatic analysis of linear and non-linear networks, and I-G Spice does interactive graphics.

The third product, named The Total Modelling Technology Package, is aimed at companies needing an in-house modelling facility.

## Sharp link with airline

THE high-level language APL has spread to the Far East following a link between the APL time sharing service I. P. Sharp and Singapore International Airlines.

The purpose of the new company, to be known as Singapore International Software Services, is to supply APL facilities in flight throughout the Far East.

The ownership of the company is split 51%/49% between Singapore Airlines and I. P. Sharp respectively. It will give Far East users access to the international network run by I. P. Sharp.

## User security

A NEW financial modelling system for IBM System 34 users has been introduced by Chicago-based PCK Inc. Called EasyPlan, the package allows the user to perform calculations, data manipulations, and "what if?" analyses interactively with hard copy facilities. The system features extensive user security and is available at a reduced introductory price for a limited period.

## ICL contract

ICL has awarded Jackson Associates the contract to design and develop its new investment management and stockbroker administration package known as Invest-master.

## Firms merge

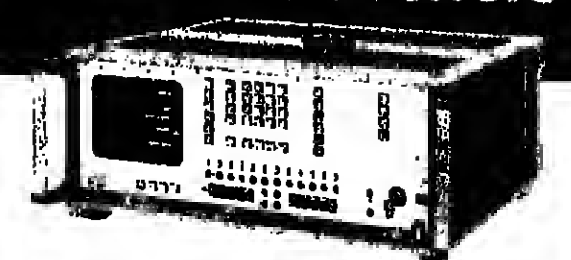
A COMPANY merger will create an organisation with significant capabilities in the CAD/CAM and graphics industry. The companies involved are US-based Evans and Sutherland Computer Corporation, which produces aircraft simulator visual displays, and Shape Data of Cambridge, developers of the Romulus three-dimensional computer modelling package.

## Optimiser

NEW YORK systems and software house Advanced Computer Techniques has developed an optimiser for its Pascal compiler. Orders have been placed by Sperry Univac and Apple Computer, and the compiler is now also available in the UK with this additional feature.



## ...W&G Data Analyser shows up transmission errors



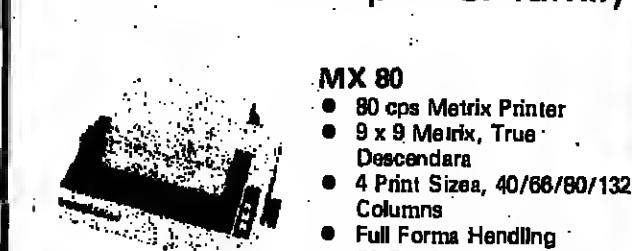
W&G Data analyser takes the guesswork out of tracing faults on digital data communication systems. The DA-10 visibly shows transmission errors on a CRT screen. It's easy to use standard programmes are ready for immediate recall and programme changes are entered quickly through dialog with the CRT screen.

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## SYSTEMS THOUGHTS

## How audio-visual kit can 'liberate' tongue-tied students of technology

ONE of the many skills a systems analyst needs to acquire in order to do his job properly is an ability to communicate, both with people within the DP department — programmers and operators — and with those outside it, such as users and providers of information, and those unconnected with the company, including consultants and hardware and software manufacturers.

Written communication takes many forms, including report writing, letters, papers, operating instructions, job specifications, system specifications, contracts, and appreciations of equipment and packages.

Oral communication is for many people more difficult, as it requires more interaction and flexibility on the part of the communicator, whether he is talking on the telephone, interviewing a user, presenting a new system, explaining a point to a programmer, or answering questions. It also presents problems to those trying to teach oral communication techniques in that students often believe that their appearance and delivery are quite different from what we perceive them to be.

To try to overcome this problem, we at City University have built into our MSc and Diploma syllabi a large element of communications work using audio-visual techniques.

We use these techniques primarily for interviewing exercises. We start the year by asking each student to talk on any subject for five minutes, and by filming the result on to video. This has several advantages: students see and hear themselves, often for the first time, without the additional problem of having to interact with someone else; we often discover that students who may be tongue-tied on a technical subject are fluent and interesting about a

hobby and this gives us something to build on — and it helps to overcome any awe of cameras that there may be.

We usually operate this session with two academic staff and about six students, and each session occupies an afternoon, so that as we use the studios for two afternoons a week and have about 30 students the whole exercise is completed within three weeks. We record all six students and then play them back, discussing each one as we go.

The next exercise is a initial interview with a user. We have a number of briefs prepared for the students giving short introductions to different imaginary interview situations, and one of us role-plays while another assesses the interview. These interviews are usually about 10-15 minutes, and students have to deal with a variety of situations — users who are hostile, or quiet and withdrawn, or overly interested in the internal political effects of computerisation on their department, or helpful but ignorant, or just plain scared.

The interviews are assessed on how well the interviewer dealt with the situation and how flexible he was in adjusting his questions to the reality of the interviewee. We usually get through only four of these in an afternoon, so students have a lot of time to discuss any difficulties they encountered. The beauty of the video of course is that we can play the tape through several times to emphasise certain points, and we can keep tapes for nine months to show students at the end of the year how much they have improved.

The next exercise is a fact-finding interview of 20 minutes. Students this time are assessed on their ability to obtain sufficient relevant information in the time allowed, and on their accuracy of recording it, as well as on personal

communication techniques. We have had several students who, faced with an interviewee determined not to be helpful, have resorted to threats — a mistake it is better to make in the studio than in a job situation! They have been so appalled generally by the sight of their own aggression that such a problem does not recur. For this exercise we work in groups of three students and two staff.

Several students, faced with an interviewee determined not to be helpful, have resorted to threats — a mistake it is better to make in the studio than in a job situation

We then have a group interview where several students are interviewing one person, and we see how they overcome the problems of overlap and omission, and how well they utilise the advantages of not having to take notes at the same time as asking questions. On this playback students are frequently amazed to see that they were either glaring fiercely at one of their number because they felt he was overrunning his time, or staring idly out of the window while someone else was asking questions.

The next exercise involves role-playing by students, not staff, who are merely assessing. This is a counselling interview with various briefs — a DP manager discussing with a systems analyst how to deal with a new application, a chief programmer calling in a member of



Marilyn Kennedy-McGregor lectures in systems analysis as part of the City University business systems analysis team.

his team to question his erratic timekeeping, a DP manager trying to deal with the career problems of one of his staff.

The students can then use the studios for any special techniques or situations they want to practise. Often, as the year draws to a close they simulate job interviews!

We are lucky in that we have at the University a sound-proofed television studio, complete with colour video cameras, lights, monitors and sophisticated mixing systems. We also have trained staff available to use the cameras so that we can close in on irritating hand or leg movements of which the student may be unaware. We have, however, been able to achieve perfectly adequate results by setting up fixed cameras, or even one fixed camera, and taping the results ourselves.

The cost of this sort of equipment is dropping all the time. A few years ago video cameras were only for professional use, and they were sensitive, unwieldy and expensive. Now small, lightweight cameras are readily available for hundreds rather than thousands of pounds.

We think audio-visual techniques work. Certainly they do fit us. We have extended our work in this area, at the request of students, into the undergraduate area, and it regularly gets extremely high ratings from students as a learning medium.

Marilyn Kennedy-McGregor

## NEWS ANALYSIS

## The rescue that went wrong

WHEN the DS Cavalry came charging over the hill in the last reel of the film to rescue our beleaguered heroes, the one thing that is not supposed to happen is that the Cavalry turn around at the final moment and gallop away again.

Yet that is what appeared to happen when Gesteiner's takeover of Nexos fell through at the last minute, leaving the State-owned office systems company with no products to sell, and the prospect of certain death within a few weeks.

While the official fate of Nexos and its 250 employees has yet to be announced by the British Technology Group, the transfer of the marketing rights for the 2200 word processor to ICL, and for the Leximac machines back to Mitrond, deprives Nexos of the bulk of its business and its reason for existing.

What will happen to the other products, the Ricoh word processor and daisy-wheel printer and the Unicorn shared-hic word processor, has yet to be worked out. So has the future of dealership agreements abroad and redundancy terms for staff.

So what went wrong with the rescue, which was to have been Gesteiner's big chance to get into the office systems business? It is clear that Nexos' doom was sealed by the same thing that largely brought about its serious trading losses: the agreement with Logica, maker of the 2200, that was part of the original scheme to set up Nexos in 1979.

The principal income that Nexos was to have in its early years was from sales of the 2200. Yet this machine, first exhibited in April 1980, was not really ready for the market until November 1981.

All this time, while Nexos was losing money, Logica was happily making it, churning Nexos on a cost-plus basis for development.

The one thing Gesteiner was not prepared to countenance was getting itself into a similar position, and it made it clear from the start that it would have nothing to do with Logica. The assumption was that since Nexos had paid for the

development of the 2200, rights to the design patent, Nexos and ICL, but close examination of the same contract shows that this was not the case.

Gesteiner then offered to the 2200 rights and the marketing operation complete, a Logica was on the verge of going to this, since there was a considerable danger that it would be found to be in breach of its contract.

Then ICL appeared as a scene, happy to leave the marketing in Logica's hands and to let Gesteiner's offer suddenly be repudiated.

The people at Nexos, helplessly by while all this was going on, unable to influence the death of the company were unable to influence the same birth.

The problems impinge on Nexos were compounded by a lack of judgment, such as not making the amount of the multiprocessor for use as a system, and giving adequate guarantees only by they had almost nothing to back up.

A final touch of fate was the tragedy of Nexos was the Office of Fair Trading in 1981 circulated copies of a contract with Logica to the other firms, asking whether they considered the clauses were unfair. ICL seemed to be thinking that this was giving Nexos' commercial secret to competitors.

Nexos may still find the shape of its consultancy work. Frank Nexos, which was unaffected by the collapse of Nexos, is a company that is to be learnt here — that the best is to do things but not to do them at all.

In any case, Nexos was not a company that was to be learnt here, but a company that was to be learnt here, but a company that was to be learnt here.

Rory Johnson

## ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, January 21, 1982

## Plus ça change

THE nationalisation which is creeping across the French computer industry is more than a doctrinaire expression of Socialist ideals. While ICL's managing director Robb Wilmot buys in the best of foreign technology with a series of collaborative deals, France begins to lay out its grand design which, according to Industry Minister Pierre Dreyfus, will end "Franco-French competition" and take on computer manufacturers in the rest of the world.

Much attention has been given to the opposing political philosophies of the Thatcher and the Mitterrand governments. The ultimate success or failure of their respective economic strategies is drawn up as the acid test of the policies being promulgated by right and left.

Mitterrand's plans to make the computer and electronics industries independent of the big foreign competitors calls for widespread State intervention. But it is more than a simple sequestering of private enterprise by the government. For the French have long recognised the computer industry as a national asset, even while they were having trouble turning it into a profitable one.

Whether Mitterrand's grand design for the computer industry will lead France to the forefront of information technology is doubtful. But there may be some lessons for the UK government in Gallic pragmatism and the nationalist approach to a computer industry.

In the UK we continue the debate on how much support should be given to our own computer developments, with the champions of free enterprise blanching at the mere suggestion of even indirect State aid. But as a marketing man responsible for winning a major government computer contract recently said, we have all been toying the line to comply with GATT and EEC regulations on tendering, while other governments continue with their "enlightened procurement" policies.

In all the ballyhoo accompanying Mitterrand's nationalisation, the point should not be missed that the French computer industry, as with many of our other major competitors, is receiving real financial support. It did so under de Gaulle, it did so under Giscard d'Estaing and it is doing so now.

Over there it seems that whether the government is of the right or the left, some policies remain the same.

## Universal computer

UNIVERSAL machine compatibility, with any manufacturer's hardware running software from any other, may seem like a dream to some. But it is nearer than you think.

While at the top end it may take several years for ICL's ambitious attempt to "surround" IBM kit, using software as a primary tool, things are changing at the bottom.

Commodore's talk of emulating other microcomputers seems to mark the move toward the universal machine concept that may lead the hardware side of the personal computer market to take on the aspect of a commodity. The machines will be comparable in capability and highly competitive in price.

The change in direction was thought by many to be about a year away, when Japanese equipment which would emulate IBM's Personal Computer was expected. Commodore's announcement this month of a machine which, by plugging in special circuitry, would be able to operate from software on discs for Apple, Tandy or IBM machines without modification is all the more surprising for coming from a US company.

Reaction to the proposed Commodore emulators from some quarters has been one of doubt that Commodore can carry out its plans to market them this year, or that such emulators can be made without infringing patents.

But that aside, what Commodore has done is to lay the way open for others to follow. It may beat the Japanese to it in demonstrating a machine emulating the IBM micro, but there can be no doubt that it will not be alone for long.

Like the universal car, each model doing much the same job with much the same components (and much the same software) the universal computer is just around the corner.

## 1984 and all that . . .

CONTRIBUTIONS are welcome for our column of the strange things people say to the media about computers. We will pay £5 for each item we publish. Japan is to spend about £25 million over the first three years of a ten-year programme to create a super-computer capable of acting like a human being, and reading and talking to any language.

Sheffield Morning Telegraph

## LETTERS

## Preparing for extinction

YOUR editorial A Doubtful Sort of Honour (CW, January 7) is an awesome reminder that some technologists are preparing for a war that may give us the distinction of being the last generation of humans beings.

Some recent editorials in Wireless World (Microchips and Megadeaths, November 1980) have put the case more forcefully.

We are all aware of the myriad flaws that may creep into computer hardware and software and other related equipment. Physicists and biologists are aware of the terrible consequences of atomic warfare. However, the politicians and generals into whose hands the weapons are delivered are not in

many cases scientifically educated (eg Mr Reagan) and can only think in terms of a larger World War II.

If we have brains enough to design software and hardware for World War III we cannot (like many in Nazi Germany) shirk the responsibility for our actions. Without scientists and technologists, politicians could not threaten mankind with nuclear, biological or chemical warfare.

I hope that those who receive the "doubtful honour" of work on ACCS or similar systems will use Computer Weekly to find themselves another job.

Charlesworth, Cheshire.

DAVID BAILEY

## Magnuson market share

THE article by Boris Sedacei (CW, January 7) throws further light upon the IBM plug compatible mainframe market — a newsworthy and growing market segment. However, Derek Lewis' viewpoint differs from ours at Magnuson. Since our installed base exceeds that of Olivetti, it would appear to be in third position, at least, based in number of installed systems.

I suggest that the results of the recent independent Xephon survey, published in November 1981, be taken as the definitive base of

data. This shows the market shares to be: Amdahl 45.5%, NAS 25.5%, Magnuson 18%, Olivetti 7% and BASF 4%. Nothing in Mr Lewis' comments or our sales record conflicts with these figures.

It may be additional interest for your readers to know that of these vendors only one (guess who?) manufactures, sells and supports exclusively its own design equipment.

M. TUCKER  
Managing director  
Magnuson,  
Henley-on-Thames.

## Setting up VME/B files

THE article about the deficiencies of VME/B as compared to G3 (CW, January 14) struck me as too one-sided. This can be forgiven, but what can't be forgiven is the example used to illustrate the difficulty of setting up a file, from the run stream, in VME/B as compared to G3.

A better, simpler, and similar way to G3 to do this would be to

enter the following lines:  
IN (LIBRARY FILE)  
ASUBRANIPAL  
\*\*\*\*

There is no need to enclose this in a block, since the default action of IN (= INPUT) is to create a permanent file. The example chosen by the author is obtuse.

G. B. JUDD

London W10.

## Learning for change

DESPITE the censorious tone of your editorial on my paper "Learning for Change" (CW, December 10), I believe that we are in full agreement on the main points: "New technology is a tool, not a panacea."

"Rather than worry about the loss of second rate institutions with university status, perhaps we should be putting more money into using technology to provide a better general education for everyone."

However, this may be strong meat for some of your readers and I would like to remind them that the full text of the paper is available from The Bow Group, 240 High Holborn, London, WC1.

PHILIP VIRGO  
The Bow Group,  
London WC1.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

## Lifestyle File by Don

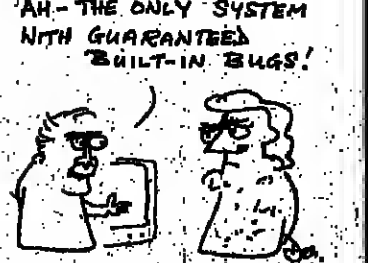
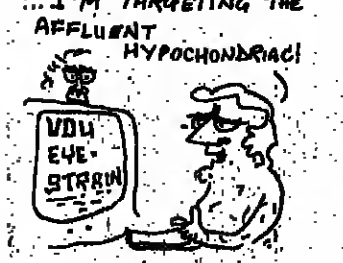
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## What's the typical Nsc customer wearing these days?



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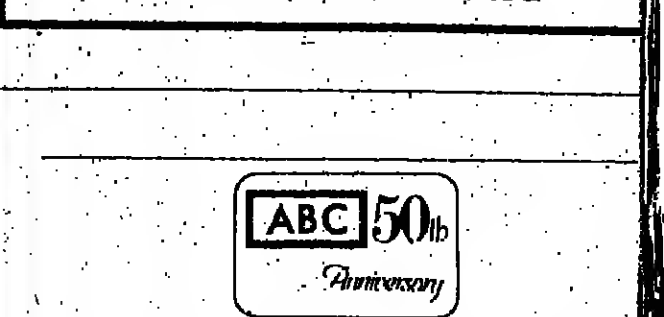
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|--|---|
| <b>TVI 910</b><br>• 8 x 10 Character Resolution<br>• Switchable compatibility                        | <b>TVI 950</b><br>• Advance editing<br>• Smooth scroll<br>• Numerous extra features as standard |
| <b>TVI 912</b><br>• True block mode terminal<br>• Extensive screen attributes<br>• Printer port      | • Full support available<br>• Add on graphics unit<br>• Firmware modifications on request       |
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## FOCUS Keep them happy

AN executive of ITT World Communications is reported as having suggested that DPMs devote more time acquiring the latest technology than to the needs of their staff. Whether this indicates that computer equipment is more troublesome and needs more care and attention than installation personnel was not made clear.

What is clear, however, is that many DP executives worry more about keeping their show on the road than keeping their team happy. If a member of the DP team goes down, a replacement is not necessarily a case for urgent treatment. But if the mainframe or a peripheral ceases to function then remedial attention becomes a priority matter.

Shopfloor flows are more important than personnel flows. From the moment the DPM learns that the warehouse manager's terminal is down and out, the DPM has to be out and about. His action takes in the DP and communications centres, sundry modems and multiplexers, circuit testers and fault diagnostics. Meanwhile, a replacement terminal is located and installed.

While all this troubleshooting is taking place, the DPM has little time to attend to such matters as DP personnel development and appraisal programs. As a result, he could find himself spending time and money in developing recruitment display ads.

Installation training programs should be as important as main-

taining close links with hardware and software within the DP centre. Training should operate on all levels of personnel and cover both individual development and enhancement of professional skills as well as corporate objectives and requirements.

Data prep personnel should be given not only the opportunity of attending supervisors' courses, but the chance of having basic discussions with representatives of company user departments. All parties as a result could benefit. Control supervisors not only should attend managerial training and ability courses, but spend time in user department environments.

Computing being a practical enterprise, courses should reflect the probable rather than the possible. The theme must always be "What would happen if...?"

For the DPM, the answer is clear. What will happen if the DPM continues to ignore his personnel responsibilities will be an increase in downtime — both machine and personnel.

Alan Simpson

## 10 YEARS AGO

From Computer Weekly of January 20, 1972

PRICE reductions of between 20 and 25% have been made in the UK for the NCR 5000 series record computer, of which more than 500 systems have been sold since it was introduced in 1967.

## DOWNTIME



## Mindless!

MY television correspondent informs me that on the BBC's new series The Computer Programme a computer expert was seen being annoyed by the fact that microcomputers were always shown playing mindless games.

One scene showed a large studio packed with a huge range of microcomputers, each with a useful task to be done, such as playing, fruit machine simulating. Next to the playful microcomputers was a computer, the workstation being displaying the message: ICL ME24.

Perhaps the games software isn't ready yet.

Alan Simpson

## 20 YEARS AGO

In a bid to increase its share of the market for medium-scale computers, current estimates put the worth £75 million a year. However, it has announced that Series 2000

## Icy train of thought

ONCE again, the British weather appears to have taken the country by surprise. The sheer bludge of having snow storms and freezing temperatures in the middle of winter has resulted in blocked roads and the decimation of rail services.

But the great British stiff upper lip triumphs in the face of adversity. While attempting to return to my country retreat on a particularly unpleasant Friday evening, I did my heart good to see that the commuting borders were unaffected by the stupor failure of British Rail to supply their London terminal with trains.

Were the brave travellers disheartened? Not a bit of it. Their normal commutes' detour was unchanged, their reprieve-like wit as sharp as ever.

One seasoned traveller omitted

## Cutting out the rubbish

SAVINGS of £70 million on the £700 million annual bill for copying Britain's documents could be made, according to a computer model built by the Independent Services and Computer Committee (Lancashire).

The model calculates the optimum routes and methods of his disposal. The model helped the save £700,000 in a year by reducing its return collection.

It is interesting to note that, to convince trade unions that labour costs are being calculated fairly, a simplified version of the package is available to them.

Does this mean that Lancashire considers its model too complicated for mere trade unionists to comprehend? Or, that the unknown factors perform their calculations in an identical manner? Always thought that computers produce more rubbish than they helped shed.

Alan Simpson

## Who'd know a computer?

IN a survey in which members of the public were asked to select classes of commercial road vehicles ranging from daycoaches to post van 150-ton earth mover, participants designated a photograph as judgement.

This begs the question: many members of the great British public, could identify a computer should they chance to meet one? I suspect that calculators, the quon, coffee makers and even heating thermostats would all be deemed to possess a computer.

On the other hand, Mr. M. average man-in-the-street has to be so bombarded with the American fictional fiction that super computers that can do the number of atoms in a pin while simultaneously singing an entire song cycles of Schubert's firing photon torpedoes at you, that he is probably too confused to recognise a computer if he saw one.

## Numbers game

GRAFFITI observed on a wall in SW15: "The 1900 series refers to the design department. Below it had been added a different hand: "The 2000 series refers to the date the work will be ready."

No comment.



Eric Watson takes over this week's page, and exhorts programmers to take a pragmatic approach to their work

## Choose your language with care if Britain is to keep its place

IT is almost impossible to open any computer journal these days without coming across one or more letters or articles either praising some particular, generally new, computer language or denigrating an old one.

The general line followed is to state that the new language facilitates structured programming, presumably in contrast to the amorphous programming which most of us produce, and allows the programmer to do various things in a more elegant way than was possible with the old fuddy-duddy languages.

With respect, I suggest that this is a completely wrong approach. Indeed the slavish adherence to this, essentially academic, approach in the British computer world is probably the main reason why American computing, which was behind us in the late Forties, caught up and passed us in the Fifties, Sixties and Seventies.

In the sterner times in which we live today a more practical approach is needed if we are not to fall even further behind. No one computer language can satisfy all needs, any more than a single type of motor vehicle can satisfy all transport needs.

The lay user will select a language which allows him to start producing useful programs in the shortest possible time. The professional programmer will choose a language to fit the problem and the equipment he has.

Both will, if they are wise, seek languages which enable them to concentrate on their problems, rather than on devising elaborate programs whose purpose, that of producing results, is too often neglected in the search for intellectual stimulation.

In the field of programming, as in most others, it is better to make good use of few tools rather than waste time and effort in acquiring techniques, most of which will

never be needed.

The question of the minimum knowledge which is required before a useful program can be written is, I believe, fundamental in judging the value of a language. It is also one of the most neglected.

In assessing what may be called the "learnability" of any language it is necessary to consider both the verbosity of its statements and the amount of knowledge required before a program can be written at all. Otherwise it would be impossible to make a valid comparison between, say APL and RPGII.

The former, as we are often told, produces programs of quite astonishing brevity. This is true — the amount of pre-knowledge required before any APL program can be written is likely to prove daunting to anyone without a good grounding in mathematical symbolism.

Programming in RPGII, on the other hand, is likely to lead to physical exhaustion, owing to the large amount of textual material to be

entered, the amount of mental effort required being small.

The suitability of any language for a particular user will also depend on the facilities he or she requires. This was recognised in earlier days by the classification of languages as either "scientific" or "commercial". Unfortunately this wholly sensible practice seems to have been abandoned recently in favour of a policy of asserting that the latest wonder language is better in every respect than anything which preceded it.

I would suggest that the time has come when, instead of pursuing this sterile policy, those interested in improving the quality and quantity of computer usage should work towards improving the learnability of computer languages, by cutting out unnecessary complex constructs, classifying languages precisely according to the fields in which they are most efficient and aiming for conciseness in writing by throwing more



WATSON: "A more practical approach needed."

of the work on to hardware, which is cheap, and less on to the humanware which is expensive. What, then, are the steps which should be taken in either choosing or developing a language? I suggest that they are:

1. Define the area of work in which the language is required to be efficient.
2. List the minimum items of knowledge which must be acquired before any program, even the most trivial, can be written.
3. Provide a measure of the verbosity of the language, that is the number of characters which must be entered in order to produce a useable program.
4. List the particular features which the language is required to possess.

The first step, defining the area of work, should not prevent too much difficulty in principle.

The preliminary studies which lead eventually to the development of what needs to be done, although I would not suggest that so detailed and exhaustive an effort is needed in every case. The second step, listing the minimum knowledge which is required before any program can be written is not so difficult as it may appear.

As an initial approach it is useful to consider the classic program which reads in two numbers, adds them together, and prints out the result. In a language such as Basic knowledge of the input and output

statements, the simple arithmetic statement, and the rule for variable names will be sufficient. In Cobol it will be necessary to know the names and functions of the four divisions, while in Algol like languages the whole business of type declarations, pointers, beginning and end and nested termination must all be mastered first.

I appreciate that once all this knowledge has been acquired it is possible to carry out all sorts of intricate calculations without need for further factual information. However, is it of little comfort to a novice user who has no need to wish to do these wonderful things? The availability of information of this nature before the user makes his choice will reduce the number of dissatisfied users at help avoid the situation which happened too often in the past, whereby new features have been cobbled on to a language to satisfy the needs of those who should have been using it in its original place.

Similar considerations apply to the verbosity of a language. On again the simple addition program will supply a measure of this feature and serve to direct the user to the language most suitable for his needs. The final step, listing the features of the language, is generally done well enough already.

The steps I have suggested require time and effort. Furthermore they will require more professional approach to the documentation of each language than has generally been adopted in the past. This is no bad thing.

As to the effort required, it would suggest that this would be considerably less than that currently expended in making huge, unclassified claims for many of the languages currently on offer.

The author, who has been reported the computer business since 1960, is now an independent consultant with special interest in the selection of computer systems.

## Cobol quiz answers

HERE are the answers to last week's quiz on the ANSI Cobol standard. The quiz was originally put to visitors in the National Computing Centre stand at the Software Info exhibition held at Wembley in December. Entrants there scored an average 50 per cent, though the winning score was 18 out of 20. No prizes for beating that, I'm afraid.

1. What does Codasy stand for?  
Ans: Committee for Deriving a Symbolic Language.

2. When was the first specification of Cobol published?  
Ans: 1960.

3. Which standard did ANSI 74 Cobol replace?  
Ans: ANSI 68 Cobol.

4. How many reserved words are there in ANSI 74 Cobol?  
Ans: 308.

5. How many modules are there in ANSI 74 Cobol?  
Ans: Nucleus + 11 modules.

6. Who is responsible for validating Cobol compilers?  
Ans: Federal Compiler Testing Centre.

7. Who is currently responsible for the development of Cobol?  
Ans: Codasy/Cobol Committee.

8. When was the current BSI Cobol standard published?  
Ans: There isn't one.

9. Which one of the following features will be incorporated in the next standard?  
Ans: Structured programming.

10. Which of the following is not an ANSI 74 Cobol module?  
Ans: LABEL RECORDS ARE STANDARD.

Ans: String handling.  
11. In the next Cobol standard what will a transitional language element be?  
Ans: An element scheduled for deletion from the following standard.

12. What verb was superseded by INSPECT in the ANSI 74 standard?  
Ans: EXAMINE.

13. In the Cobol Metaphor what are square brackets [ ] for?  
Ans: to enclose optional extra.

14. Which of the following is non-standard?  
Ans: COMPUTATIONAL.

15. What is the highest valid real number?  
Ans: 81.

16. Which of the following is NOT a valid data name?  
Ans: ABCDEF GHIJKL MNO PQRST UVWXYZ.

17. Which of the following is a valid numeric literal?  
Ans: +4.

18. In the following statement how many times is ADD-SALDS executed?  
Ans: 9.

19. Which of the following statements, relating to modules executed by PERFORM and CALL, is untrue?  
Ans: PERFORM offers better independence in its modules than CALL.

20. Which clause does not belong in a SELECT entry?  
Ans: LABEL RECORDS ARE STANDARD.

## PUZZLER

SOME years ago we had a whole series of divided alphabets appearing in this column, many of them contributed by readers. Here is one I don't mention at the time.

ABCDEFGHI JKLM PQRS TUVW Y  
HI NO S X Z

On which (non-mathematical) basis have the letters been divided? See page 46 solution.

Answer: one in each group containing original and this subject?

Mitterrand plans to cut Honeywell share of CII-HB—at a cost to taxpayer of \$180 million... Jack Gee reports

## Challenge to foreign firms as French set takeover date

NATIONALISATION of the French computer industry is certain to be followed by wide-ranging rationalisation. The watchword of the Socialist government is to put an end to what Industry Minister Pierre Dreyfus calls "Franco-French competition," and to challenge foreign computer makers.

But the French government has encountered a last-minute setback in meeting its January 20 deadline to complete the law-making process for nationalising the computer industry. The Constitutional Council has ruled that the law, as passed by Parliament just before Christmas, is unfair to shareholders in the five leading companies and 36 banks concerned. But it has not challenged the principle of nationalisation itself.

The major computer companies earmarked for nationalisation are CII-Honeywell Bull with its parent company, the conglomerate Saint Gobain-Pont-A-Mousson, Thomson-CSF, and Compagnie Generale d'Electricite.

Matra was taken over at the end of last year by the acquisition of a controlling stake in its equity by the State.

But the takeover of CII-Honeywell Bull is likely to be delayed while negotiations are completed with Minneapolis-based Honeywell which has a 47 per cent holding in the venture. The French government hopes that, after receiving cash compensation, Honeywell will continue to co-operate as both a commercial and

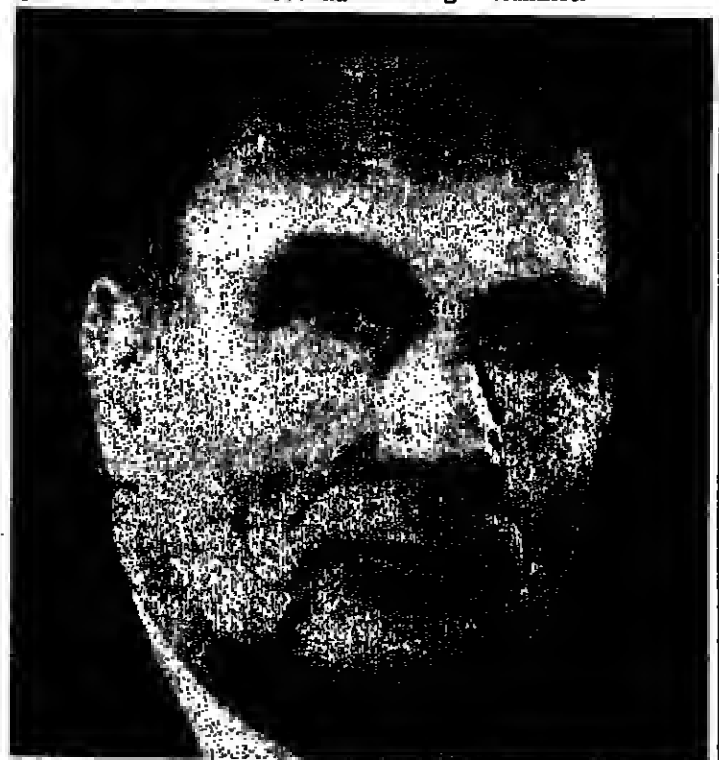
CII and Honeywell Bull, with the blessing of President Giscard d'Estaing who provided a dowry of 1.2 billion francs (£120 million) in subsidies and guarantees of four billion francs (£400 million) in State orders over the next four years.

The objective was to help the new firm become a competitive venture. By 1980 it appeared that the target had been met. CII-HB was making a profit and had doubled turnover, developing new products and generating new jobs.

But exchanges of products between CII-HB and Honeywell were steadily working against the French firm. Between 1978 and 1980 CII-HB purchases from Honeywell rose from 423 million francs (£42 million) to 547 million francs (£55 million). Meanwhile CII-HB sales to Honeywell slipped by 232 million francs (£23 million).

Roger Peuroux, chairman of Saint Gobain, was alarmed by this imbalance and the increasing debt load of CII-HB. He and chairman Brulé clashed over Saint Gobain's decision to use Olivetti, in which Saint Gobain has a 30 per cent holding, as a base for developing automatic office equipment. Brulé was told to go.

CII-HB produces the entire range of computers from mainframes to minis. It has seven research centres with a staff of 2,500, factories at Angers in the Loire Valley and Belfort near the German border, and a sales network covering 68 countries.



MITTERRAND... Promising revitalised computer industry.

technical associate of the French company.

The government is thinking of reducing Honeywell's share of CII-HB to 19 per cent. This could cost the French taxpayer \$180 million.

An arrangement with the Americans is urgent because CII-Honeywell Bull, as the leading French computer firm, will be the hub around which a restructured information technology industry is to be built.

Restructuring will be costly. CII-HB registered heavy losses last year and these will be repeated in 1982. The company's long and medium-term debts rose from 1,481 million francs (£148 million) in 1979 to 2,309 million francs (£230 million) in 1981.

CII-HB, headed by Maxime Bonnet since chairman Jean-Pierre Brulé was unceremoniously sacked last summer by Saint Gobain, has a staff of 20,267. Control of the 53 per cent stake in CII-HB is held by Machines Bull, a Saint Gobain subsidiary.

The computer firm was created in 1975 from a marriage between

were turned towards production agreements with the United States. Jean-Pierre Bouyssonnie, chairman of the Thomson-Brandt holding was hoping to make a technological and sales pact for minis with SEL across the Atlantic.

But Industry Minister Pierre Dreyfus has written to Bouyssonnie vetoing the arrangement. Dreyfus' aides say: "What we need now is a coherent development plan based on what French industry has to offer." That means the efforts of CII-HB and Thomson in conjunction with the other half-dozen French manufacturers of minicomputers; but a merger between Thomson-CSF Informatique and CII-HB is not on the cards.

The government intends to invest 600 million francs (£60 million) in the minicomputer programmes of Thomson over the next five years and probably as much as 1.5 billion francs (£150 million) in CII-Honeywell Bull.

Another computer technology firm which comes under the nationalisation axe is Transac-Alcatel, a subsidiary of the vast Com-

pagne Generale d'Electricite. Transac-Alcatel has registered a steady annual growth rate of 25 per cent over the past five years. It is

Europe's biggest manufacturer of automatic bank note dispensers and cash points and has either built or taken orders for 3,500 units. It controls 30 per cent of the French market in smart and transaction terminals, of which it has made 70,000 units.

Nationalisation will be accompanied by a number of top-level management changes in the French computer industry. At CII-HB Maxime Bonnet is expected to be told to step down from the chairmanship and make way for Gerard Thery.

They headed the French telecommunications authority under President Giscard d'Estaing. Michel Hug, a brilliant engineer who headed the equipment division of Electricite de France, the publicly-owned generating authority, is likely to succeed Bouyssonnie at Thomson.

President Mitterrand, who opened France's National Science Symposium in Paris a few days before the nationalisation process was due to be completed, is promising his encouragement to a revitalised computer industry. He said scientific research, which accounts for two per cent of France's gross national product this year, will rise to two-and-a-half per cent by 1985.

The state's civil research budget will rise annually by 17.8 per cent during this period.



BOUYSSONNIE... Soon to be replaced.



BRULE... Unceremoniously sacked.

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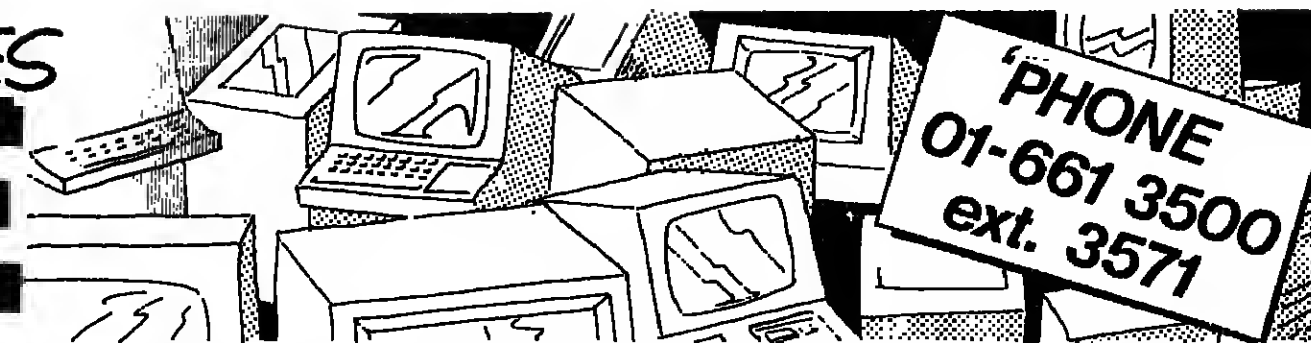
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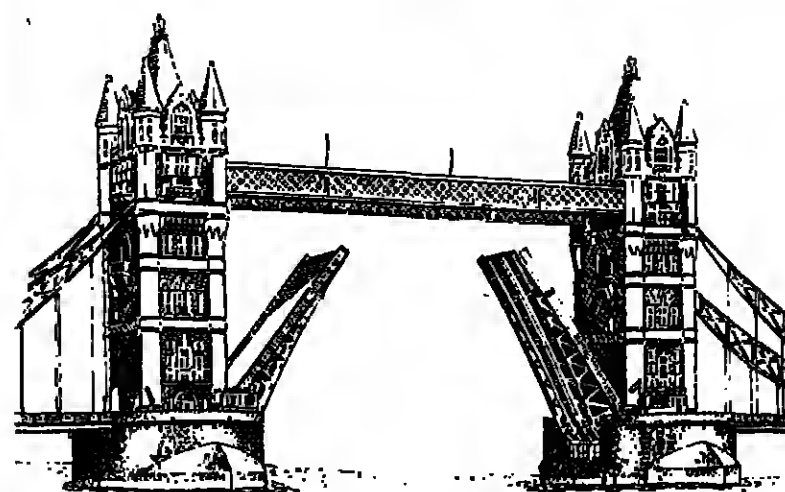
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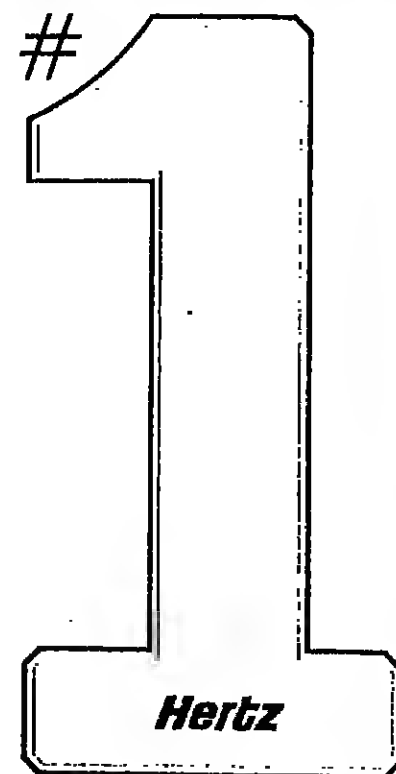
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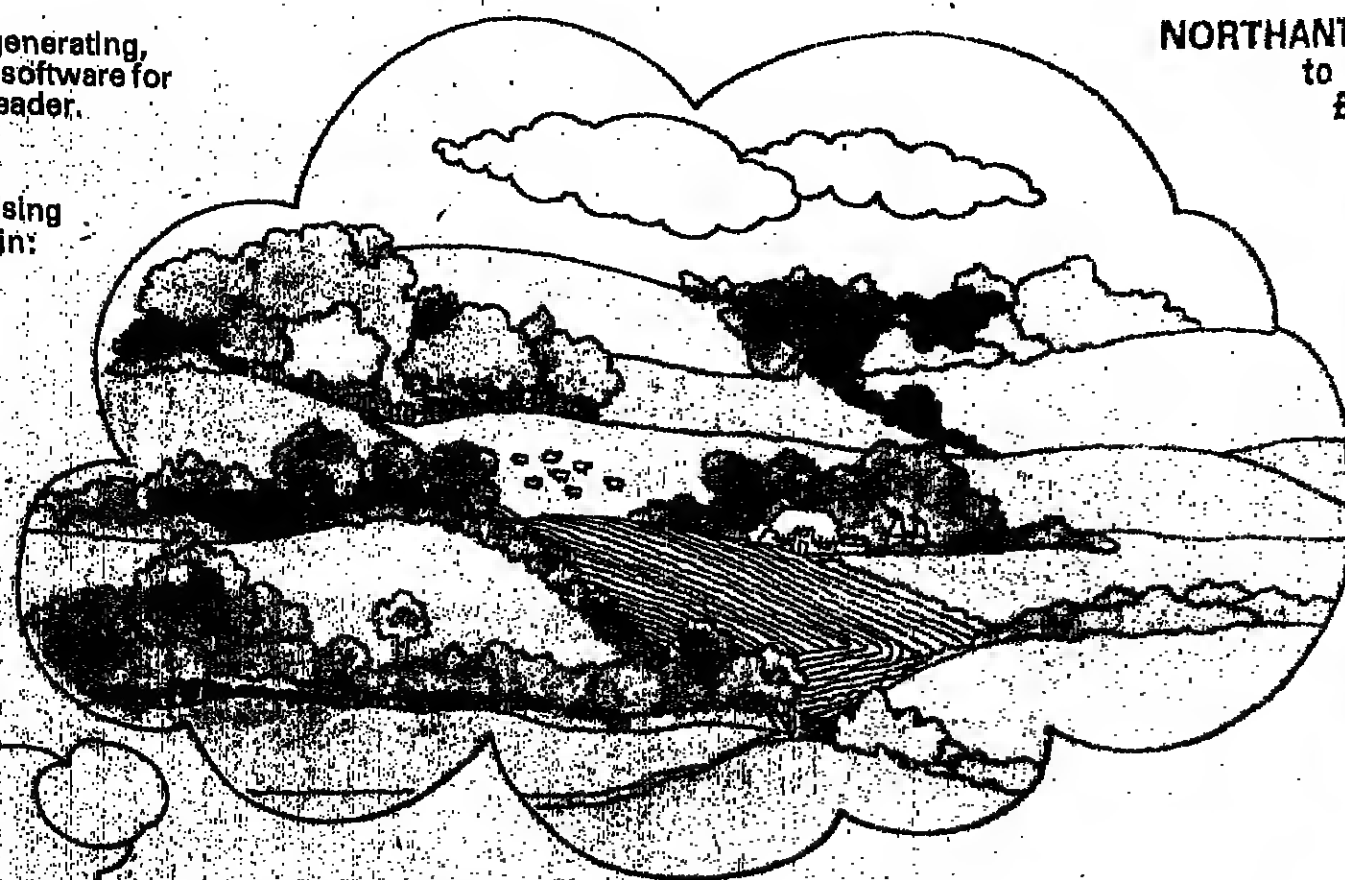
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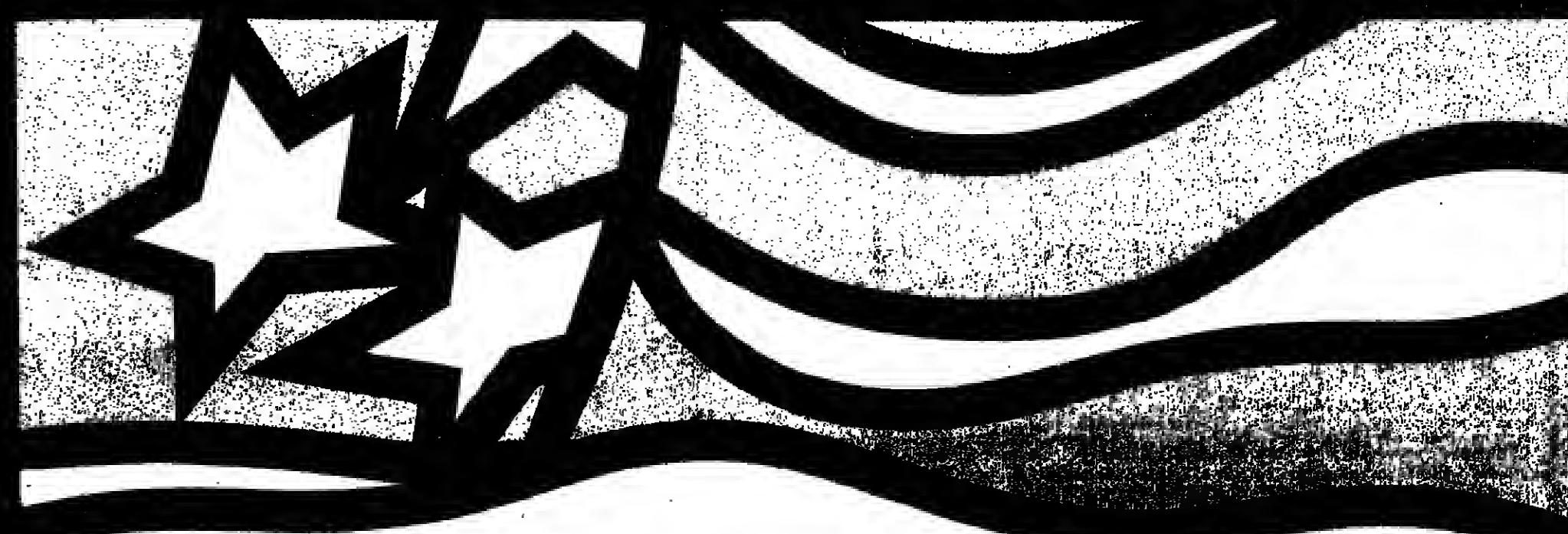
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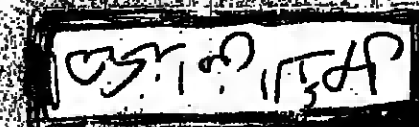
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A leading supplier of Business and Communications Systems has a requirement for a number of PASCAL Programmers. All respondents, preferably aged 22-30 years, should offer a minimum of one year's post-graduate industrial experience in an environment where PASCAL has been used as the major programming language. You will probably be employed as either a Software Engineer or Junior Applications Programmer within a systems or software supplier. Our client can offer a number of diverse opportunities within its various operating divisions covering such technical areas as the design and implementation of financial management packages, data communications networking or the development of the home and hobbyist computing markets. Ref: L3/B

## Project Leaders

Central London: Salaries to £15K

A world leader in the field of Information Technology and Communications is currently seeking additional Project Leaders. Suitable applicants will be aged 27-35 years and offer a minimum of five years' combined programming and systems development experience gained in either a manufacturer or systems house environment. You should have a detailed knowledge of message packet switching, office automation or Viewdata systems. Of particular interest will be candidates who have experience in leading or managing a project team involved in the development of a system from feasibility through to implementation. Candidates who can offer foreign language ability will be offered the opportunity to travel overseas. Ref: L3/C

## Jnr. Scientific Programmers

Sweden: Salaries to £14K

Our client, an internationally renowned Systems House, is currently seeking additional Real-Time Programmers for its Swedish division. These positions will appeal to young career-minded graduates who are currently employed in a real-time mini- or microprocessor environment. It is essential that you have a minimum of two years' programming experience, and languages should include Pascal and Assembler. Particular applications areas of interest are telephony, telecommunications, industrial engineering or process control. As a member of a small project team you will be involved in the design, coding and testing of real-time applications software to meet user specifications. Ref: L3/D

## Local Area Networks

London & Home Counties: Salary to £16K

Communications Systems Designers and Real-Time Programmers are required to assist in the development of an advanced micro-based local area network. Systems Designers will have been responsible for the formal definition of the structures and interconnections required to provide shared communications on at least one major, non-homogeneous system. Whilst not essential, familiarity with the I.S.O. reference model will be favoured. Applicants for the programming positions will be required to have at least two years' communications experience, preferably gained on a packet-switching system. Candidates with a knowledge of X.25 protocol standards will be especially welcome, as will those with practical experience of U.C.S.D. Pascal. Ref: L3/E

## Micro Development

Beds/Cambs: Salaries to £10K

A number of Micro Engineers are sought, by a highly regarded microcomputer manufacturer, to join its Research and Development facility. At least one degree in Computer Science, Electrical Engineering or a related discipline is essential and should, preferably, be supplemented by at least two years' work experience. It is anticipated that you will be currently employed by a computer manufacturer or a small, specialist systems house. Naturally, an appreciation of hardware design techniques would be an advantage but, more importantly, you should have software skills in either compiler development, with particular emphasis on C and Pascal, or the development of Operating Systems, especially if derived from UNIX or RSX/11. Ref: L3/F

## VAX Progs/Designers

London & E.E.C.: Salaries to £15K

A leading International Systems Company specialising in the development and sale of communications software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in FORTRAN is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX/VMS configuration. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and transatlantic travel. Ref: L3/G

## Basic Programmers

Berkshire: Pkge to £10K

A long-established Systems and Software House with its U.K. headquarters based in rural Berkshire is currently seeking additional Programmers. Suitable candidates will be graduates with a minimum of one year's industrial experience, preferably in a commercial environment. Fluency in Basic is essential. Whilst exposure to particular hardware is not important, there is a stated preference for candidates to have worked in a microcomputer environment. You will join a project team engaged in the development of financial packages for end users and computer manufacturers and therefore a knowledge of accountancy would be a distinct advantage. The remuneration package is excellent and includes a car allowance, a bonus and an above-average basic salary. Ref: L3/H

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Word processing equipment is currently in a stand-alone mode and Data General minis are utilised for remote processing. A message switching system using SNA for transmitting telegrams to the USA is also being investigated.

### London S.W.1

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### DOS/VSE Systems Programmer

The successful applicant will join a team of systems programmers supporting the existing software which includes DOS/VSE, CICS, DL1, SNA, VTAM, etc., and evaluating/implementing new packages for the U.K. and six other European countries. Candidates should therefore be prepared for some foreign travel.

The London installation consists of two IBM 4341s, one running under VM. The current plans are to install an IBM 3081 in 1982 and convert all systems to MVS. Full training will be given, making this an ideal opportunity for a DOS Systems Programmer to expand their skills.

**£10,000-£13,000**

A salary in the above range is envisaged but candidates should not be deterred from applying if their expectations fall outside these limits.

For further information please contact our London office quoting reference number S2/2101.

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### Shift Leaders

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You will have responsibility for the day-to-day operation of the complete computer service, including the supervision of specific shifts. Your background of about 3 years as an Operator must include at least a year's experience at supervisory level and about 12 months on a major PDP 11/70 site backed by HNC/HND or a professional qualification. Ref. M207/01.

### Scheduler

c. £12,000 p.a. tax-free

You will assist in the daily control of the computer service, but taking special responsibility for all aspects of scheduling. Again your 3+ years in computer operation must have included both supervisory experience and exposure to PDP 11/70 systems. Ref. M207/02.

Tax-free salaries will be paid in Saudi Riyals\*. Benefits include 49 days holiday per year, free return flights to the UK, medical care, and free accommodation furnished to the highest standards. Medical City, a purpose-built landscaped living complex adjacent to the hospital, includes shops, gymnasium, theatre, swimming pool, tennis courts and restaurants for the exclusive use of staff.

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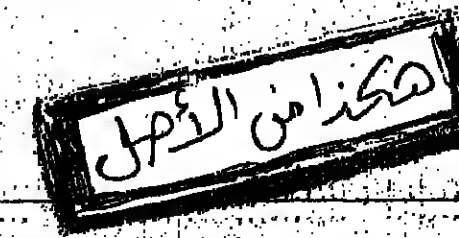
For further details, please phone or write to: John Innes, IAL, Aeradio House, Hayes Road, Southall, Middlesex UB2 5NJ. Tel: 01-574 5432. Please quote the appropriate reference.

### Computer Services Officers

c. £12,000 p.a. tax-free

This is a broad-based opportunity for someone with about 12 months PDP 11/70 experience where responsibilities will range from computer operation and monitoring to liaison with users. Ref. M207/03.

**IAL** MEDICAL SERVICES  
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# Real-Time Programmers

Up to £10,000 p.a. Dorset coast  
Increase your skills on Europe's most advanced data comms., projects

Our business based at Poole plays a leading role in advanced data comms., and includes exciting projects concerned with packet switching, telex switching, data concentrators, modems, internetwork adaptors and new services such as telnet.

We can offer excellent career opportunities to experienced Programmers who will work with well qualified professional engineers in small design teams on complex multi processors operating under Real-Time Software. Specific responsibilities will include the design of modules, writing and testing programs for new Pads, Message Protocols, Execs., and Test Beds.

Applicants should have had at least 18 months Real-Time Software experience

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In addition to a competitive salary we offer an attractive package of benefits including free BUPA and comprehensive relocation package. We are located close to the pleasant Dorset coast where housing is reasonably priced and there are good educational, social and leisure facilities available.

For an informal discussion please call on any weekday during the next week up to 6pm reversing the charges on 020 13 5161 ext 2028 or write with full personal and career details to: J.G. Griffiths, Plessey Controls Limited, Sopers Lane, Poole, Dorset. BH17 7ER.

**PLESSEY**

## SYSTEMS & PROGRAMMING CONSULTANTS

Computer Systems International is a Software house with offices in London, New York and Dallas. We are currently seeking all levels of staff to complement our existing teams.

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Minimum 2 years' experience, ideally IBM Mainframe, with strong COBOL/ASSEMBLER a distinct advantage. £7,000+

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Approximately 10 years' experience to control teams of Programmers and Analysts. Good technical background required with excellent communications skills. To £15,000

In addition to our current business in England and the States, we are planning several assignments in Europe and the far East in the near future.

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## SWITZERLAND

English speaking project  
Telex Software Development

An International Telecommunications Company is seeking Software Programmers to develop new Software for PUBLIC DATA SWITCHING SYSTEMS. Candidates should be in their mid to late 20s, have a degree, plus a minimum of 2 1/2 years' Assembly experience in a telecommunications environment. Alternatively candidates with operating systems experience would be equally valid. Successful candidates may look forward to enhancing their career progression, gaining valuable experience in an international environment.

Technical Author  
Switzerland

A Technical Author is required for a communications company in German-speaking Switzerland. The successful candidate must be in their late 20s, have a fair knowledge of German with Hardware or Software experience within an engineering background.

Technical Writer  
Italy

Our client seeks a Technical Writer to work in Northern Italy. The successful candidate must have communications experience including the following: IBM/SRA, SPOOLING & PDP11 operating systems.

## SWITZERLAND

German speaking Project  
Software Development

A major communications company require additional German-speaking Programmers to develop a new Software communications system. Candidates should possess the following experience:

- German language
- Assembly
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The starting salary is negotiable, depending on experience, and will not be an obstacle for the right candidate. The benefit package will include mortgage subsidy, season ticket loan, pension scheme, free BUPA and subsidised staff restaurant.

If you'd like to talk to someone capable of discussing the technicalities then you should ring Michael Moliver or alternatively you can write to, or ring the Personnel Department for an initial meeting where we can discuss the longer term possibilities. Personnel Department, BUPA, Provident House, Essex Street, London WC2R 3AX. Tel: 01-353 9451.

**BUPA**

## SYSTEMS PROGRAMMER/ OPERATIONS MANAGER

with at least 3 years RSTS/E experience to wet nurse our new PDP11/44 installation. Experience in typesetting, text processing or word processing fields would be a distinct advantage.

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## OPERATIONS MANAGER

N. LONDON from £10K + CAR

Major company situated in North London area require an experienced IBM Operations Manager for their expanding ODS/VS installations. The successful applicant must have a mature outlook, together with a proven ability to liaise with development teams and all levels of management.

This position also involves some travel within the U.K. For further details telephone: 01-834 8823 (Daytime) or 01-834 0081 (24 hrs.)

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With responsibility for BEC and DEC/TEC Computer Courses. Candidates should possess a degree or other equivalent qualification in Computing, and have practical experience of use of computers in industrial/business situations. A teaching qualification is desirable.

Salary Scale: £5,422-£10,431 p.a.

Applications forms and further information are available from the Principal, Monkwearmouth College of Further Education, Swan Street, Sunderland, S25 1ER.

Closing date for applications: 2nd February, 1982.



**borough of  
sunderland**

## Operations Manager

London Based

£10-13k.

C.I.S. is an English registered company based in London and Paris. Operating within a specialised application field, and including among its customers most major finance companies and a large number of motor manufacturers and importers, the company offers a complete range of turnkey, bureau and software development services. C.I.S. uses N.C.R. MAINFRAMES, running various on-line applications including Voice Response Systems. To run the installation we are seeking to employ an OPERATIONS MANAGER who has experience of managing people and controlling a busy shift operation under pressure.

The successful applicant will have a sound knowledge of N.C.R. 8500 equipment, the VRX operating system and some experience of communications. The position provides an opportunity for the Operations Manager to steer the company through an equipment upgrade, and to establish standards and procedures to the highest possible level.

The position is a senior one within the organisation and applicants must have the ability to achieve efficiency improvements, meet production schedules, and maintain a good working relationship with suppliers, while maintaining a complete control over their standards of service. In return the company offers a high benefits package in a highly successful and rapidly expanding organisation. For further details contact Kevin McCourt quoting reference 3665.



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## BOX NUMBERS

Box number replies should be addressed to:

Box Number.....  
c/o Computer Weekly  
Quadrant House  
The Quadrant  
Barton, Bury S12 8AS

## SOUTH AFRICA PROGRAMMERS

Minimum 2 years experience in Cobol under PDP11 for IBM S/VS preferably in an on-line environment. Our client offers attractive salary, 13th cheque, pension and life insurance and car benefits. A representative from VOLKSWAGEN South Africa will be conducting interviews in London. Telephone 0471 811 0141, London W12 8JW. 01-445 0022 (0220)

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As a result they have a heavy demand for DP Professionals, advising and leading programming teams in producing the software for new business systems.

Applicants should have at least five years' COBOL programming and design experience including data base exposure in supervisory or consulting positions for batch and on-line applications.

You should have used IBM's IMS techniques and on-line utilities such as ROSCOE and LIBRARY and a working knowledge of JCL would be welcome. Our client is looking for programme specification experience and proven expertise in the use of 'best current practice' structured design techniques.

Initially contracts will be for one year on single status, renewable by mutual consent. However longer-term family status contracts or permanent assignments are anticipated.

High salaries and professional career opportunities are supplemented by a most generous benefits package which includes free accommodation, free transportation, free medical insurance, relocation and Visa costs paid, 28% Completion Bonus, and full assistance in settling in.

For further details please contact Elizabeth Piper or send your C.V. NOW to her at: Lakeland, Roke & Radcliffe, Union House, Bridge Road, Tunbridge Wells, Kent TN11 8HF. Tel: (0892) 88717.

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(10120)

## SENIOR PROGRAMMER/ANALYST (DATA PROCESSING MANAGER DESIGNATE)

### CAMBRIDGE

Bidwells is a leading firm of chartered surveyors, managing property and farms through the country. Due to expansion and with a software house involvement we have recently installed a Data General Nova 4 System to upgrade and expand systems in our accounts and estate management operations. We now wish to appoint a Senior Programmer/Analyst to build up and expand our computer function.

The successful candidate will be a Programmer/Analyst of at least 5 years' experience and will have developed systems using DG Business Basic. He or she is probably currently employed in a progressive DP environment or a software house, can show a record of successful systems, is self-motivated and able to communicate with assurance with all levels of management.

We consider this to be an appointment which will grow as our data processing needs develop. The position involves a wide range of tasks to ensure the efficient operation of existing systems and to recommend and effect the installation of new hardware and software in other areas of our business. We offer excellent conditions for our staff. Benefits include annual merit bonus. Relocation expenses will be paid. Local accommodation will be provided.

Please apply with full details of age, experience and present salary to:

J. T. Livingston Booth F.C.A.  
Chief Accountant  
Bidwells, Trumpington Road, Cambridge CB2 2LD

(10120)

## Data Communications Network Engineer

The development of the global telecommunications network has led to the requirement for an additional Data Communications Engineer to join the International Operations Department of American Express Corporate Telecommunications Services, based in Brighton.

Key responsibilities will be in an operational support role involving diagnosis and rectification of network outages, liaison with vendors regarding the maintenance and servicing of data communications equipment and some network installation/reconfiguration work.

We are particularly interested in candidates, male or female, with experience of PDI, Rascal, Modem and Codev Modems, multiplexers and allied devices. Experience with LRM systems hardware and line protocols would be an advantage.

An attractive salary is offered together with a mortgage assistance scheme, non-contributory pension and profit share plans. Relocation expenses will be paid, where appropriate.

Please write giving career and salary details, or telephone for an application form to Mrs. Diana Sharpe, Senior Personnel Officer, Corporate Personnel, American Express L.L.C., Prestonia House, Preston Road, Brighton, Sussex, BN1 6BN. Telephone: 023555 Ext. 3629.



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### Management Resources

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## ANALYST/PROGRAMMER

We require an Analyst/Programmer to further extend and integrate our production control, financial and administrative systems. Applicants should have COBOL experience. Previous experience of production Control Systems and knowledge of Data General CS Software would be advantageous. We are a progressive company and can offer a stimulating background to the right candidate. Salary will be subject to experience and qualifications, but is unlikely to be less than £7,500.

Please apply in writing enclosing CV to:  
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Station Road  
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**SCHMIDT**

# Your opportunity in the sun. Join one of South Africa's most sophisticated computer installations.

Our Client, Inlogold, is the Information Systems Department of the Gold and Uranium Division of the Anglo American Corporation. They are looking for:

## SOFTWARE PROGRAMMERS DATA BASE ANALYSTS ANALYST PROGRAMMERS PROGRAMMERS

Situated in the country the installation presently has on IBM 3033 and on IBM 3032 with South Africa's first IBM 3081 being installed early this year. In addition, they have a wide range of mini computers at remote sites. They use the latest software tools, including IMS data base and data communications.

## CONTRACT OR PERMANENT

They are looking for genuine DP professionals at all levels who already have a minimum of two years' experience in the industry. Education and training is given top priority and the true data processing professional need not necessarily have a background with IBM equipment.

South Africa has much to offer—a booming economy, sunshine, low taxation and high living standards. The employment package offered by Anglo American is generous, even by South African standards, and includes:

- Top salaries plus a car for senior positions.
- Annual bonuses for permanent staff or end of contract bonuses for contract staff.

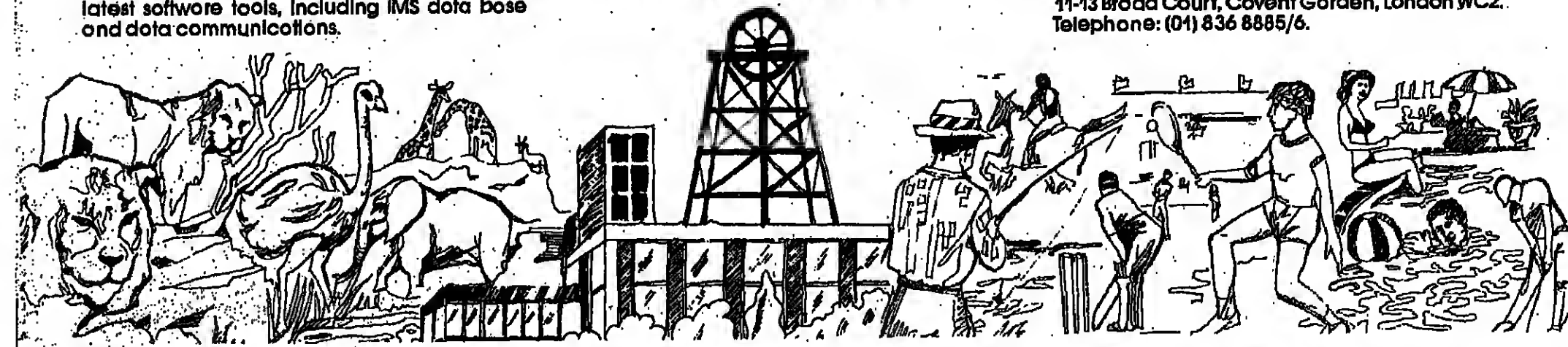
- Housing of 5% of the basic salary.
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This is an ideal opportunity to combine career progression, experience in a new country and a real possibility of saving.

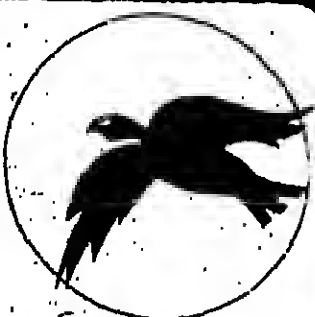
Final interviews will commence in London on 22nd February.

For further information please contact Anne Breuer or Chad Stolper on (01) 836 8885/6 or, if you prefer, write to:

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Our clients, a leading financial institution, would like to recruit a team leader with proven supervisory and forward planning experience. CICS experience is their number one priority, as you would be heading their systems team which consists of five people. They give their staff excellent company benefits, good career path, and a professional and stable working environment.

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Are you fed up with applying for really good jobs and find you are turned away because you haven't got CICS experience? Well, here's a real opportunity for you to change all that! Our client needs someone with two years' IBM COBOL experience in a small team. They are prepared to train you in CICS and pay you an excellent salary and benefits. Interested? Of course you are. Call us for more information.

CALL LINDA ABL OR ELLEN WALDREN ON  
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### SENIOR ANALYST PROGRAMMER £10,000

Do you have the ability to maintain and enhance systems without supervision? In this company you would be working in a small computer department that is in the initial stage of expansion. They currently run an IBM S/370 and an IBM Sys. 3. If you have IBM COBOL, would like the opportunity of learning RPG11 and CICS, then this could be an ideal career move for you. Call us for more details.

### SENIOR PROGRAMMER £9,500+

Our client is currently developing a large engineering system and requires someone with an excellent background in PL1, experience in CICS or ISCO would be a definite advantage. Promotion prospects within the company are good, benefits are substantial. If you feel you have gained enough experience in your present job and would like the opportunity of developing your skills, this is the opportunity you're looking for.

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### PROGRAMMER NCR COBOL

c £8,000

Information financial organisation requires a programmer with NCR Cobol and IMOS experience. Any exposure to IBM RPG11 would be useful. This is an excellent opportunity to join a rapidly expanding D.P. department and become involved in a variety of systems and hardware with the possibility of some overseas travel. Usual banking perks are offered.

### SYSTEMS PROGRAMMER BURROUGHS ALGOL

c £11,500

A large company whose interests are well known are currently looking for an experienced systems programmer to join their specialist team on a wide variety of applications. A minimum of 3 years' experience utilising MCP and datacom with the emphasis on datacomms is required with extensive use of Algol. Any knowledge of Cobol would be useful. A good relocation package is offered to this site in Surrey. This requirement is urgent.

### SENIOR PROGRAMMER HONEYWELL

c £9,500

Manufacturing company based in Middlesbrough using a BSA DPS mainframe is currently seeking to recruit a programmer with 3 years' + Cobol experience. Knowledge of TDS is desirable as the company is expanding and adopting all the latest software releases. Perks are excellent and include 5 weeks' holiday and 50% discount on company products.

### JNR PROGRAMMER RPG11

£7,000

Subsidiary of a multi-national corporation require 2 Junior Programmers with at least 6 months commercial RPG11. Excellent career path with rapid progression through to Analyst. This is a good opportunity for a talented programmer to move into a small and professional team.

### SENIOR PROGRAMMER BASIC ++/2

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to £11,500

Senior and Junior programmers are required by sites in C. London and the Home Counties. Applicants should have from 1 to 4 years' experience preferably gained in an H.P. environment. These positions are with progressive companies offering excellent career prospects and a variety of perks including mortgage subsidy, travel allowance etc.

### PROGRAMMER ICL COBOL

c £9,000

Expanding City based installation seeks a programmer with around 2 years' Cobol experience gained on the ICL 2900 range. The preferred applicant will have both on-line and database experience with a good commercial background. The company is shortly installing new hardware and can offer excellent career prospects and perks including a substantial bonus scheme.

### ANALYST & PROGRAMMERS DG COBOL

to £11,500

A well-established bureau currently embarking on new projects requires various levels of staff from Programmers to senior Analyst/Programmers. Knowledge of DATA GENERAL NOVA under ICOS is essential for the more senior positions whilst a good commercial COBOL background would be suitable for the programmer post. Based in Central London, this client offers good working conditions and excellent career prospects.

### PROGS & ANALYST/PROGS. IBM COBOL

to £11,000

At the end of 1981 and the beginning of 1982 we have identified numerous and various requirements in the IBM sector. All the sites are mainly Cobol orientated but any PL1 knowledge would be an advantage. One C. London user has recently installed two IBM 4341 machines and now wishes to expand their development team substantially. The posts range from programmers, with 1 years' Cobol, to Analyst/Programmers, with around 3 years' experience. Preference will be given to applicants with some knowledge of CICS or similar real time system although training will be given where necessary. This is a typical C. London requirement but there are many other sites recruiting in other parts of London and the Home Counties.

### PROGRAMMERS IBM ASSEMBLER

to £9,000

2 Central London financial installations are seeking to recruit experienced IBM Assembler Programmers to complement their existing teams. Applicants should have a minimum of 1 years' experience gained in any commercial environment. Knowledge of CICS would be useful however training will be provided where necessary. Both companies offer secure positions with good career prospects and a wide range of benefits including mortgage subsidy.

This is just a small selection of current requirements. For details of these and others not advertised contact us now.



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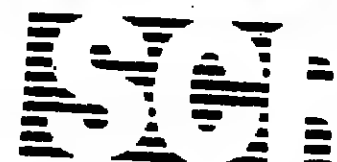
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We are the leading supplier of DEC based systems in South Africa and are enjoying a very healthy demand for our product range within the commercial, manufacturing, and government application areas. Our success has given us a R10 million turnover and we are now sustaining an annual growth rate of 40%. As a result of our product popularity, covering networking, communications and stand alone applications, we are seeking to recruit experienced DEC personnel to help with the installation and development of systems within our Client base. We are particularly seeking DEC PDP 11 and/or VAX experience, together with a good knowledge of RSX 11 operating systems. Our main programming language is COBOL but any experience in ASSEMBLER, CORAL, OR BASIC would be helpful, as would previous networking/comms knowledge. Our facilities are based in the Johannesburg area but our Clients are spread throughout South Africa and travel to sites will occasionally be required. As a well established Company, we can offer an excellent package of salaries and benefits which we will measure against abilities available. We can also demonstrate a high degree of

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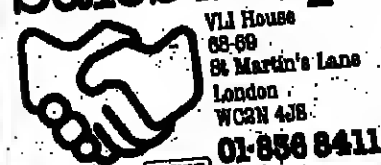
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(8271)

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There are openings at various levels at our client's offices in Kent (bordering SE London) and South Hertfordshire.

We would like to hear from programming enthusiasts who have at least two years' practical high level language experience (technical or applications oriented) — and who have the desire to be at the forefront of communications software technology.

Please ring us for a talk, quoting reference 681CW, or leave a message on our answering machine after hours.

(8192)



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Software used includes OS/VS1, VM/CMS, CICS, DL1, Roscoe, Elsas, MelaCOBOL and other packages associated with a dynamic computer installation. Conversion to MVS and VTAM are under consideration.

The successful applicant will need to have had at least 2-3 years experience of OS/VS1 or MVS plus a good knowledge of CICS/DL1.

The job will present an excellent opportunity for an individual with drive and self-motivation to increase software skills and expertise and take supervisory responsibility.

The remuneration package includes free BUPA, Life Assurance and generous relocation expenses where necessary.

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Large scale development projects, powerful new hardware and versatile software packages are all part and parcel of the plans leading up to the mid eighties. DPMs must recruit the men and women to support and initiate these technical advances.

The benefits are self evident. Highly competitive salaries are complemented by preferential mortgage schemes which can be worth over £2,000 p.a.

To cite a few examples: A leader in Assurance in Middlesex wants to meet Systems Analysts with 2 years' experience and some programming background on IBM. On-line experience would clinch a deal around £9k + mortgage.

IBM Systems Programmer to join one of the most famous and respected companies in Britain. MVS is essential. Believe me they have a great package. City based.

Major British Clearing Bank is shortlisting applicants for the position of Chief Systems Analyst. The right person will have management experience and the energy to shoulder the responsibility of extensive development work. Salary £14k + mortgage.

A major Clearing House in the City is seeking experienced IBM Assembler programmers to involve themselves in development work. A CICS background would be a big plus but training would be given. c£8k + mortgage.

An International Bank needs RPG11 System 34 programmers with 2 years' experience to join a team involved in development and first-line support. Salary to £11k + mortgage.

The EDP Audit department of an international Bank is seeking a senior Systems Analyst to be responsible for new and existing systems. Salary c£11k + mortgage.

A Systems Analyst with ICL 2900 experience operating under VMEB is urgently needed by an established Assurance Company in London. Salary to £10,000 + mortgage.

If you feel you have the potential to succeed in the financial community, regardless of whether you match the above specifications, give Richard Smith at 01-938 1804 to chat about how the banks can work for you.

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- most major hardware
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We need ANALYST/PROGRAMMERS for 1st FEBRUARY or soon after, for an assignment in NORTH EAST ENGLAND. Stock control and coating systems implementation.

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### PROGRAMMERS

**BERKS**  
Berkshire currently offers some exceptional opportunities for people with COBOL experience, with on-the-job structured programming experience. If you are familiar with the 9000 or IBM 4300 Data Base software Targa immediately for an introduction to these opportunities.  
Ref: R2464

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### RPG

**LONDON**  
Demand for Programmers and Analyst/Programmers with RPG II or RPG III experience and extensive supply. We are in touch with many clients in industries including Banking, Distribution, Manufacturing and Software Houses offering a choice of a wide range of applications areas. Make 1982 the year your career took off - call Targa for an early interview.  
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### ANALYST/PROGRAMMERS

**CITY**  
Our client, a City based commodities house, currently utilising DEC equipment working under RSTS/E requires further Analyst/Programmers with sound experience of BASIC and/or BASIC+2. An applications background involving financial or general commercial work would be advantageous but is not essential as a good knowledge of the programming/software disciplines is of benefit. A salary commensurate with experience will be paid, plus generous company benefits.  
Ref: R2464

### ENGINEERS

**BERKS**  
A highly successful manufacturing company is seeking experienced engineers to work in the development of microprocessor control systems. These are excellent opportunities for persons with a degree or equivalent who have at least 3 years' experience either in micro-computer software or with micro applications and circuit design.  
Ref: R2464

### ANALYST

**KENT**  
You may currently be an Analyst/Programmer who aspires to his or her first position involving using Data Base facilities and supporting several remote locations. If you are currently frustrated in the search for a full Analyst role then this could be you - excellent benefits including mortgage.  
Ref: R2464

### SENIOR PROGRAMMERS

**ESSEX**  
An Essex-based company has a requirement for experienced PROGRAMMERS to work in a busy but interesting ICL environment. Our clients handle a large volume of the transactions for the London insurance market therefore an insurance or financial applications background would be required. A minimum of 3 years' COBOL experience, preferably using ICL equipment is programming vocabulary occur at other levels and motivate other programmers. Further slightly less experience. All positions attract an excellent company benefits package.  
Ref: R2464

### SYSTEMS ANALYST & PROGRAMMER

**ESSEX**  
Our client, heavily committed to the implementation of new systems involving manufacturing development team, has a requirement for a Systems Analyst and Programmer for their COBOL background, with possibly PL/I/AS for the Analyst position and a sound ICL background, with possibly PL/I/AS for the Programmer. As well as an excellent salary, related to experience, an exceptional benefits package applies, which can in certain circumstances include relocation.  
Ref: R2464

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## SHIFT LEADER (Data Control Section)

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An excellent opportunity has arisen within a large financial organisation for someone with a minimum of three years' ICL operations experience who wishes to further his or her career.

Experience of 2900 VMEB is necessary, along with the ability to supervise two other members of staff (a knowledge of George II+ and DME would also be useful). The ability to communicate at all levels is essential.

The ideal applicant will have an appreciation of the day to day running of a Data Control Section, preferably gained through first hand experience.

The company offer excellent working conditions and a structured career path. The current salary will be reviewed in March.

For an immediate interview or further details  
telephone 01-439 6481 quoting reference  
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East Anglian Regional  
Health Authority  
Computer Branch

### Team Leader -

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Salary Scale: £8,490-£10,323 per annum  
(Additional allowance up to £500 may be payable to a candidate with appropriate technical expertise.)

### Systems Designers/ Programmers

Starting salary up to £7,500 per annum

This Authority provides a data processing service for the East Anglian Health District using an ICL mainframe computer and a variety of mini and microcomputers. The major systems are now due for conversion/re-writing for an ICL 2968 computer due to be installed in mid-1983. We require a suitably qualified and experienced person to lead a small team in the conversion of major health care systems and in the development of several microsystems. We also require systems designers/programmers with at least two years experience preferably with a COMOL programming background, to work on the conversion of financial and health care systems.

Application forms, job description and further details obtainable from the Regional Personnel Officer, Union Lane, Cambridge CB4 1RF.  
Closing Date: 4 February 1982

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### THE UNIVERSITY OF LEEDS SYSTEMS ANALYST COMPUTER ASSISTANT (PROGRAMMER)

An experienced Systems Analyst and an experienced Computer Programmer, for training to join a growing team of analysts and programmers working in the Administration Department of the University of Leeds. The successful candidate will be responsible for the design and development of systems and the programming of applications. For consideration, please send your CV to the Personnel Officer, University of Leeds, Leeds LS2 9JT. Closing date: 15 February 1982.

The successful candidate will be responsible for the design and development of systems and the programming of applications. For consideration, please send your CV to the Personnel Officer, University of Leeds, Leeds LS2 9JT. Closing date: 15 February 1982.

### University of London DEPARTMENT OF EXTRA- MURAL STUDIES in association with Imperial College and Chelsea College

**MICROCOMPUTING:  
BASIS PROGRAMMING  
AND THE LINK 2002**  
(11 February-18 March 1982) (8 weeks)

**INTRODUCTION TO  
FUNDAMENTALS OF  
COMPUTER SCIENCE  
AND ENGINEERING**  
(18 March-15 April 1982) (8 weeks)

**FORTRAN PROGRAMMING  
AND THE LINK 2002**  
(15 April-12 May 1982) (8 weeks)

## SALES BIT Make sure you sell to the decision-maker

A FEW weeks ago I spoke to a salesman who was rather distressed and disappointed due to the loss of a major sale, which he had been absolutely confident of securing. It appeared strange for he had a high level of personal credibility with the principal executives of the company.

He had a particularly clear understanding of the company and its needs, as he had been an employee of the organisation concerned, and he knew that his product had a variety of meaningful advantages over his competitors - yet he lost the business!

Most of the books and training courses that deal with the process of selling either state or imply that the ultimate decision-maker is the managing director, so he is the one to whom the sale must be made.

This is a misleading assumption which is not true in most circumstances. The chances of the managing director being the absolute decision-maker usually grow as the value of the proposition increases, and decline the larger the organisation he is controlling.

For instance, the managing director of a small service company having a new product to be purchased, whereas the managing director of a major corporation will merely "rubber stamp" the decision of a subsidiary or division to invest several hundred thousand pounds on a new computer.

On the other hand, it would be a serious mistake to exclude the managing director from the selling strategy of any prospective sale of significant value, for in most cases he is likely to have influence upon the decision-making process, as have his fellow directors and senior executives.

The important distinction to make is between the "influence" ("decision-maker") and the "ultimate decision-maker". Sales training courses across the country use the term "decision-maker", for it implies that the final decision will come from the top of the pyramid.

This is not so. There is no such thing as a "decision-maker" in a large organisation. The rate can usually be traced to the salesmen's position. But this is so that demands are placed on the salesmen to take their own ability to decision. They have to prove their competence by such recommendations.

If sales success is achieved, it is essential to identify the individual who is actually making the decision and to simulate through their direct superior.

Very rarely will any worth identifying person be away from the decision-making responsibility for a failure related to him.

Influence the sales by all means, but allow this to act as a guide for selling to the decision-maker.

Alan Williams

## COURSES

### Programming series

TEACHERS, programmers and serious computer hobbyists who wish to extend their knowledge of programming may benefit from Tottenham College of Technology's Second Steps in Programming series of winter courses, which include a course on Data Structures and Algorithms, and one on Program Design Methods. The participants should have some knowledge of programming in a high-level language. Further information from Tom Shaw, Tottenham College of Technology, High Road, London N15 4RU. Enclose a stamped addressed envelope with correspondence.

**FORTIS Electronic Technologies** has recently formed Fortis Training, an independent training house specialising in microprocessors courses. The courses will be held in Cuckfield, London. Training will be given by engineers and the first series is based on the 6525 range covering all levels from an introductory 6800 course, through to the 18224 68000 microprocessor. All seven levels below the line read the same and related through 180°.

planned for the start of this year. The introductory course last year was held in January, July and October and £450. Details on the other Fortis courses from Ruthie Alexander on 01-450 1147.

**The Royal Society** examinations board three computer courses. Computers I, II and III, Stages I & II, are a qualification for specialists who require background knowledge of computers in their Data Preparation and Analysis. The qualification is for those concerned with the preparation of punched cards and magnetic tape, and Computer Operations. Stage II provides a knowledge of the duties of computer operations personnel and is a qualification for those who wish to the activities of a DP centre. Details from the chief officer of the Examinations Board, Adam Street, Adelphi, London WC2N 6EZ.

**PUZZLE ANSWER**  
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## Software Engineers For DEC based systems



## Remote Controlled Systems circa £10k

A leading international supplier of Remote Supervisory Control Systems is currently seeking to recruit a number of Senior Software Engineers. The company undertakes total responsibility for turn-key projects which incorporate process control computer systems and associated instrumentation and communication equipment. The majority of these systems are concerned with the oil, gas and water industries.

Software engineering and program development are the central focus of the company's systems operation and with more than 20 years' experience in digital electronics, it has built its reputation on the application of sound engineering principles to modern technology. To further augment their software department they now wish to appoint several high calibre personnel.

The ideal applicant will possess the following qualifications and experience:-

- \* a degree of HNC/HND in electrical/electronic engineering, computer science or systems control
- \* Sound experience of MAC11 Assembler language and the RSX11M operating systems.
- \* Experience generally with DEC PDP11 - 34/44 or LSI/123/124.
- \* Knowledge of other high-level languages and I/O techniques to a variety of peripherals would be an advantage
- \* 3-4 years' overall experience in the software engineering field, which should have included some design and specification of projects associated with process control, telemetry and communications.

It is quite possible that there will be occasional trips of short duration abroad and therefore, mobility and a flexible approach are essential requirements.

The company provide excellent induction facilities and promotion and career prospects are first-class.

These positions are based in a rural Warwickshire location and extremely generous relocation assistance is available in appropriate cases. Terms and conditions of employment are very attractive including 32 days' holiday entitlement. If you feel you have the necessary qualities to succeed in these challenging roles then contact our advising consultant, Rod Beeson on 021-643 8501 during office hours or 021-777 8743 (eves and wknds 7-9pm). Alternatively write to him at Alpha Tower, Birmingham B1 1TT.

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